

## SUPPLEMENT.

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE.

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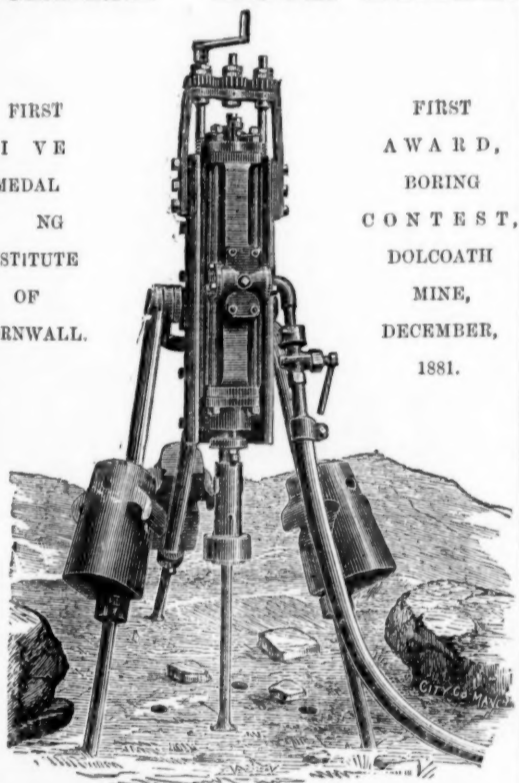
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No. 2462.—VOL. LII.

LONDON, SATURDAY, OCTOBER 28, 1882.

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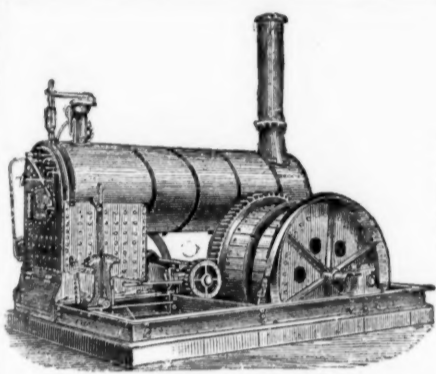
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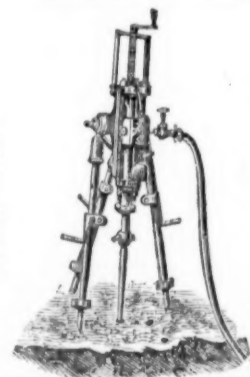
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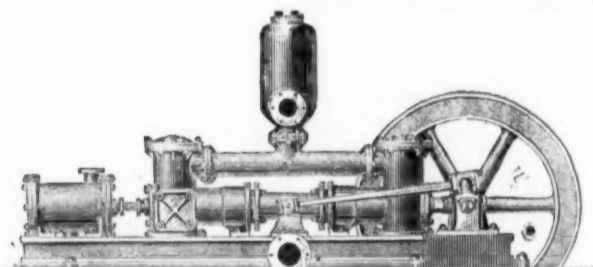
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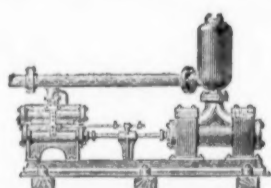


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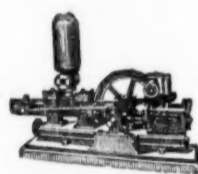
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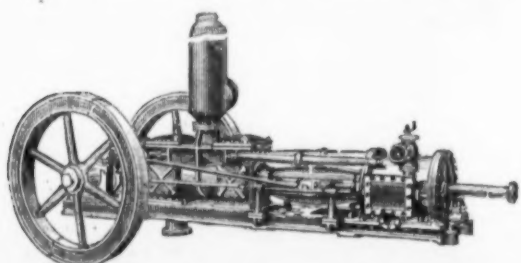
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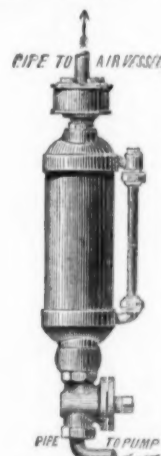
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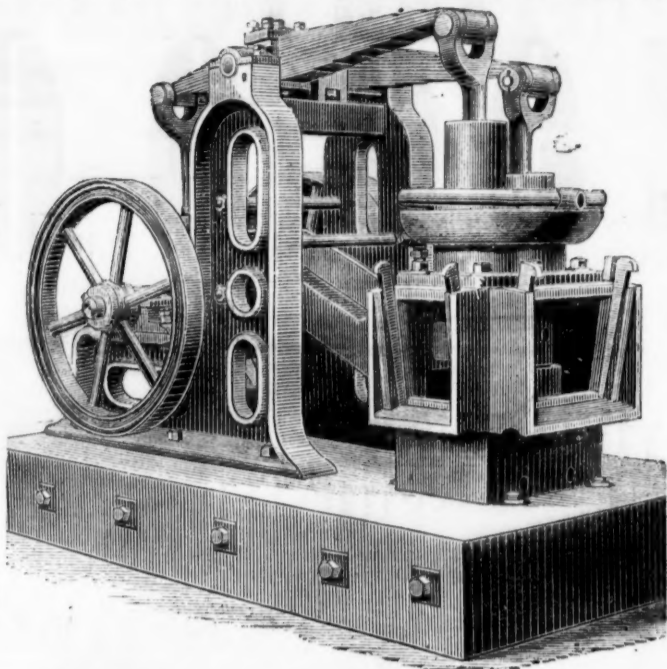
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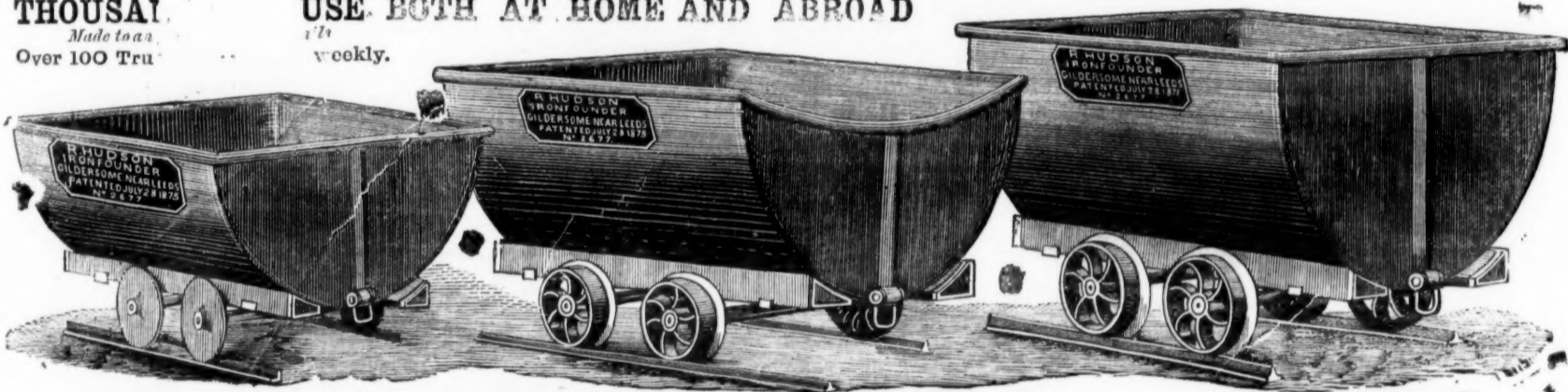
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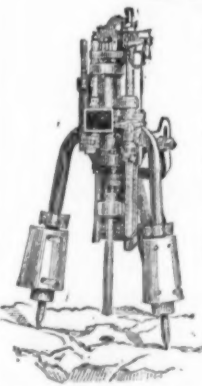
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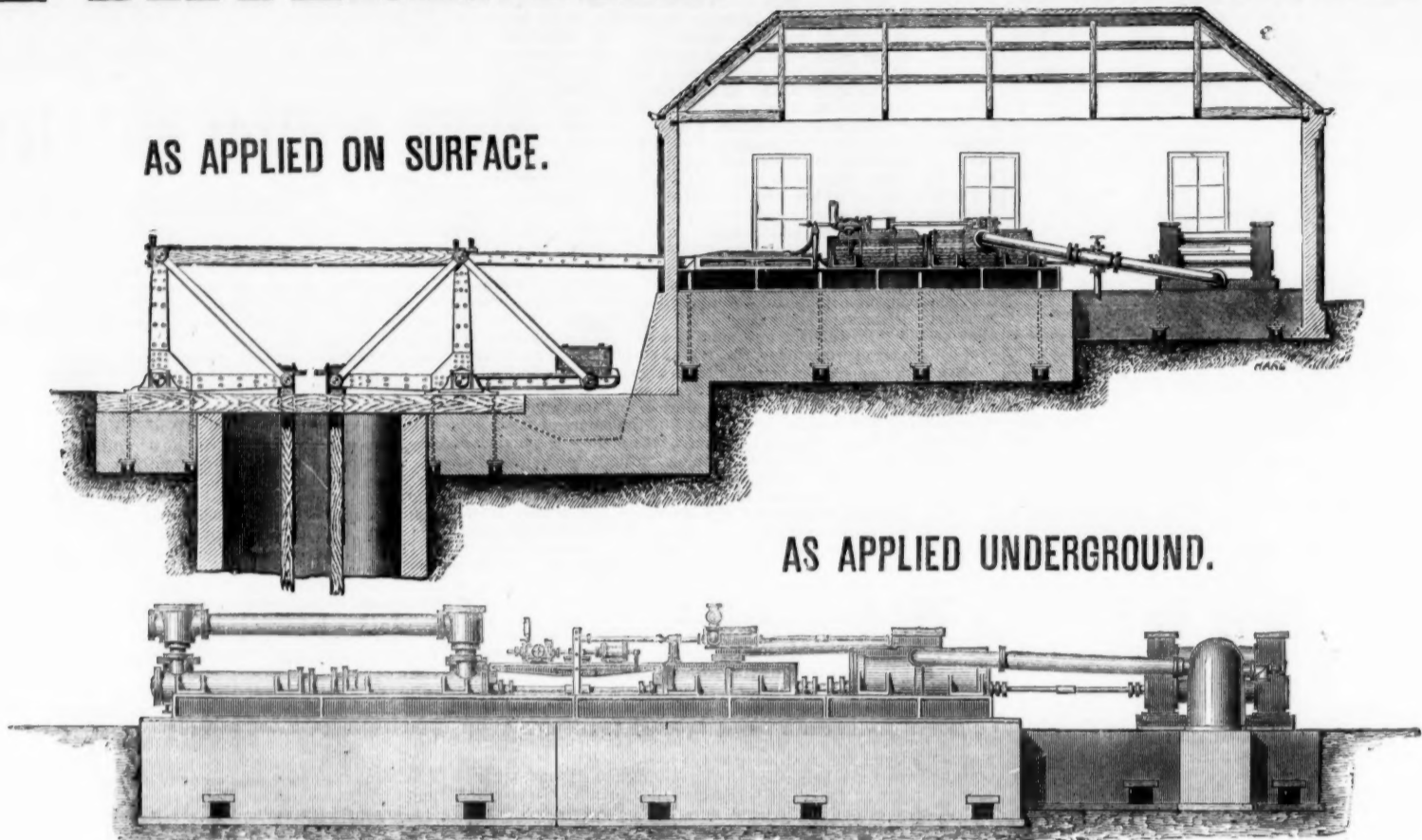
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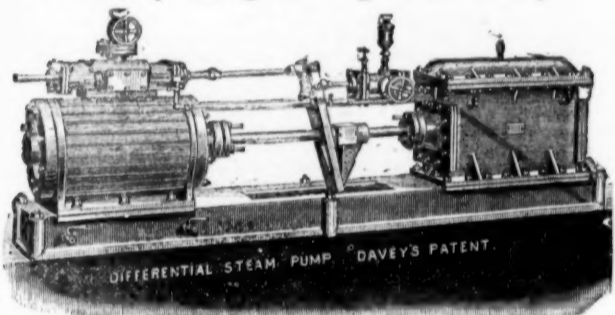
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12	6	24	6,500	250	90	104	130	4	2	2
12	7	24	10,500	180	96	110	136	5	2	2
12	8	24	13,500	140	100	114	142	6	2	2
12	10	24	21,300	90	120	136	175	7	2	2
14	7	24	10,400	250	110	130	156	5	2	3
14	8	24	13,500	190	120	145	165	6	2	3
14	9	24	17,300	150	130	150	172	6	2	3
14	10	24	21,300	120	140	162	190	7	2	3
14	12	24	30,800	80	160	190	216	9	2	3
16	8	24	13,700	250	140	170	195	6	3	3
16	9	24	17,300	200	150	180	215	6	3	3
16	10	24	21,300	160	160	196	225	7	3	3
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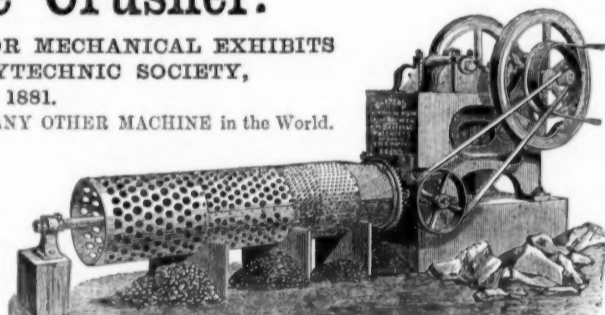
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GENTLEMEN,—We have the pleasure to inform you that the 20 by 9 Stone Breaker supplied by you is now working to our entire satisfaction, and we are now able to fulfil our contract with ease, which we had much difficulty in doing before with the Blake Machine. It takes less power and turns out considerably more stone.  
Yours truly,

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## Original Correspondence.

## A TRIP TO COLORADO—No. III.

BY THOMAS CORNISH, M.E.

Author of "Gold Mining, its Results, and its Requirements."

Before leaving Central City it will be a matter of interest probably to notice the proposed scheme of the British and American Tunnel Company, which, when carried out, will indeed be a grand enterprise. The company intends constructing a tunnel from the Fall River to the North Clear Creek, a distance of over four miles in length, intersecting all the gold and silver fissure veins on its line, including the celebrated Quartz Hill, Nevada. Prof. J. Alden Smith, State Geologist of Colorado, in his report on this enterprise, says: "I know of no point in the whole Rocky Mountain region, where a tunnel of equal length would open so many mines of proved value as this, penetrating, as it will, the great gold and silver belts of Gilpin County at depths varying from 1000 to 2000 ft. It will not only open but will drain the mines to those depths, and make it possible to work them that much deeper than is now feasible by shafts from the surface, besides affording an economical outlet for the ores extracted, to a splendid water-power of ample capacity for their reduction at a fraction of the present or possible cost of steam-power. This will largely increase the profits on the grades of ore now mined, and enable the owners to handle profitably millions of tons now left in the workings and on the dumps, because they contain too small a percentage of the precious metals for profit above present cost of mining, transportation, and reduction."

The first portion of this proposed extensive tunnel scheme will be going through country as yet but little prospected; but at a distance of about one mile from its mouth the tunnel will intersect the Champion group of mines at a vertical depth of nearly 2000 ft., and as these lodes dip at an angle of about 45° it will give nearly 3000 ft. of back stopping above the tunnel. About half a mile further north the White Cloud group will be penetrated at a vertical depth of 1700 ft., and with the dip of the veins will give 2500 ft. of back stopping. At about two miles from its mouth the tunnel will intersect the Pewabic group at 1500 ft. vertical and about 2000 ft. on the dip of the veins. At about half a mile further north the Leavenworth at a depth of 1500 to 1600 ft., and next the Alps Mackie group will be intersected at a depth of 1900 to 2000 ft. Three miles from the entrance the tunnel will cut through the California and Hidden Treasure group of mines. These celebrated mines are in the heart of the Gilpin county gold fields, and embrace the California, Hidden Treasure, Kansas, Burroughs, American Flag, Flack, Kent County, Forks, Sodin, Mount Desert, Stark County, Mercer County, Rolls County, Gardner, Illinois, Egyptian, Boston, Rhoderick Dhu, Missouri, Campgrove, Corydon, Newfoundland, Sullivan, Water Mill, Crispin, and others of well-established value, with the Black Hawk group, comprising the Hobtail, Gregory, Fish, Bates, Leavitt, Briggs Mammoth, Running, and others as extensions to the east. At three and a half miles the tunnel will reach the Prize-Gunnell group, cutting these well-known veins at from 1200 to 1500 ft. in depth, and at a half-mile further will be cut through the Winnebago group.

The country generally to be cut through is granitic gneiss. The veins are pronounced to be true fissures, holding their course regularly and distinctly across the strata of the country rock, and without diminution of the quantity or quality of the ore, have been proved to depths of 500 to 1300 ft. The veins vary in width from 2 to 15 ft., with a general average of about 3½ ft., containing ore of two grades—stamp or mill ore and smelter ore—showing a general average of about 1 oz. per ton gold and 6 ozs. silver. The tunnel will be constructed in height and width so as to work engines and tram wagons of good capacity, with a large water-way under the floor and at convenient places along the route of tunnel, where practical water will be conveyed down shafts in pipes to the tunnel workings, and its power utilised for working machinery, for rock-drills, ventilation, &c., as required. At the mouth of the tunnel large reduction works will be erected (probably 200 stamps) and other works for milling the ores from the company's own mines, as also those companies who work their mines through the agency of this tunnel; and from the large number of mines now in work along the route of tunnel it is estimated that over 1000 tons of ore daily will be run out from their mines at a charge of (say) \$1 per ton. The revenue from this source, from public milling of ores, and the profits on the workings of the company's own lodes, and the many new ones that will be discovered and claimed by them in the prosecution of this really grand undertaking, will in all probability make the British and American Tunnel Company, of Gilpin County, Colorado, one of the largest and most profitable gold mining properties in the world.

The company has secured a large area of land about the mouth of the tunnel and nearly 100 mining claims along the tunnel line, many of known value, and which will be cut at depths varying from 1000 to 2500 ft. from the surface. A number of gentlemen of position and influence are associated with this enterprise in Colorado, and it has been favourably reported on by that well-known authority, Prof. J. Alden Smith, State Geologist of Colorado, and Prof. Bradford H. Locke, mining engineer, Central City, Colorado, who also prepared the comprehensive plans showing the design; and Col. P. R. Smith, of Denver, giving a statement of the details of the organisation and workings.

The capital to be raised for carrying out this important work will be about one and a-half million dollars, a large portion of which has already been subscribed for locally, and it is intended to place the balance of the stock on the English and continental markets, where, no doubt, such a legitimate undertaking will be received with the favour it deserves.

After visiting Central City and the district surrounding it, I returned to Denver, to proceed to Rico in the Dolores County, in the south-western corner of the State and amongst the San Juan Mountains, a distance of about 500 miles. Taking the Denver and Rio Grande line, we proceed due south, whirling along the eastern slope of the Rocky Mountains, passing Acequia, where a line branches off up through the various mountain gorges to Salida, Leadville, Gunnison, &c., and on to the Colorado Springs. The scenery along here is exceedingly picturesque, giving a view of the Castle Rock and the curious rock formations of Monument Park, and in the distance the numerous high peaks of the mountains, many of which are capped with snow, affording a moving panoramic view of the most interesting kind.

Colorado Springs, 75 miles from Denver, is 5780 ft. above the sea, situate on a plateau at the foot of Pike's Peak, which rises to a height of 14,147 ft.; this grand snow-clad mountain can be seen in all its grandeur from every point of the compass, forming a landmark for all the country around. Some fine hotels and others being erected afford excellent accommodation to visitors and tourists to the mountain scenes, which are so grand about Manitou, including the celebrated Garden of the Gods, the Cave of the Winds, Glen-Eyrie, Austin's Glen, Ute Pass, Pike's Peak, Cheyenne Canon, Rainbow Falls, &c. From Colorado Springs the line keeps a very straight course along the plains to Pueblo, which is a rising city and one of the depots of the Atchison, Topeka, and Santa Fé Railroad. With the exception of the continuous view of the Rocky Mountains, the scenery near to Pueblo is not particularly interesting, but after passing the grazing plains of Huerfano and Cuchara the train approaches the Spanish Peaks, and commences the ascent over the Veta Pass. To enable the trains to climb the mountain sides to get over this high pass, about 12,000 ft. a second engine has to be put on, and quite enough work it is for the two engines to work their way up the steep grades and round the sinuous track cut into the side of Veta Mountain, leading to the Mule Shoe Curve and Veta Pass. As the engines laboriously work their way up the mountain you catch sight of the trail left far below, and a grand diversity of scenery is continually presenting itself to view—rocky ravines, forest lands, valleys, and ranches—until a height is obtained often-times virtually above the clouds.

In passing over some of the light wooden trestle-work bridges, or around the sharp curves continually presenting themselves, some of them 30° radius, and along the narrow rocky ledges which gives a look into unknown depths below, the traveller can scarcely help being impressed with a sense of the danger incurred in such travel-

ling, and of the daring and skill of engineering talent that has enabled such obstacles to travel to be overcome and passed over with a fair degree of speed and safety. Over the Veta Pass a descent takes place to Fort Garland and on to Alamosa, which is about 7190 ft. above sea level. Thence on to Antonito, where the main line goes south into New Mexico to Espanola, Santa Fé, and other places, while the Durango and Silverton line goes west through the Toltec Gorge, celebrated for its magnificent scenery and curiously shaped rocks, along the borders of New Mexico. It is difficult to find words to convey an impression of the majestic grandeur of the scenery, the nerve-testing positions the traveller finds himself placed in while the engine and train winds round and over the rugged hills, then along the brink of an immensely deep valley, at the bottom of which rushes along the turbulent waters collected from the many streams. At one point when looking ahead the snake-like track appears to have come to a full stop where a bold, high jutting headland of bare rock appears offering a barrier impossible to get round, along the serpentine track as the train winds its way towards this supposed barrier it suddenly enters a tunnel cut through this rocky neck, and on as suddenly emerging from its gloomy darkness into daylight beyond the train is found apparently in mid-air, rattling over the unseen rails of a high skeleton-looking wooden bridge, the trestle-work of which, when viewed at a distance causes a natural reflection of what would be the consequences of a sudden collapse of the structure or a tumble over into the abyss below of over 1000 ft. Considering the dangerous nature of portions of this line, there have been but few serious accidents. I was shown a spot where the hindmost carriage of a train jumped off the rails and snapping the connecting link tumbled over the side of a steep mountain, smashing the carriage, and killing all the passengers but one, the ashes of the burnt carriage now mark the spot. Line repairers are kept constantly at work along the route, keeping it in good order, and every care appears to be taken to guard against accidents.

After passing through the Toltec Gorge and its various sights the line enters into the territory of New Mexico, and the country of the Mexicans and Red Indians, as indicated by the names of the depots or railway stations. Passing by Chama, where there is a branch of Denver and Rio Grande Railroad running southerly to Chamita, and forming a junction with the main line from Antonito. On thence to Amargo, the centre of an Indian district; it was when nearing this depot I first caught sight of the Red Skins, or a portion of the warlike tribe of Apache Indians, who, having been driven from their former hunting grounds, have been apportioned a tract of country about here where they may pitch their tents or wigwags and live in peace with the squaws and picaninnis and watch the progress of civilisation as inaugurated by their inveterate foes the whiteman. Passing here on a Friday going down, and the following Friday going back, and that being the days on which the United States officer serves out the rations of beef, flour, &c., as supplied by a paternal government to the fast dying out children of the forest, gave an excellent opportunity of examining these people closely. The train making a short stoppage there on the journey down, and a number of the Indians and their squaws, some with horses, being at the depot, waiting for their rations, we got into conversation with them, and soon set some of the sharp-shooters at work, shooting at coins (ten cents and quarter dollars) the size of a shilling and sixpence stuck on a stick. Some of them were very expert, and soon hit the coins off, and although several would be shooting at once they seemed to know whose arrow struck the coin, and quickly took possession of it. On the journey back we passed several hundreds of them, mostly on horseback, coming into the station, and a few of them tried to keep up with the train. They were mostly well mounted and rode well, but their steeds had a poor chance against our "iron horse" without legs. The appearance of the Indians are not inviting, especially at close quarters. They have a slovenly gait in walking, and look much more stately and picturesque on horseback than on foot.

The pioneers of mining in the mountains who, having not only the natural difficulties of the country to encounter, but also to contend against the craft and hatred of the Red Skin, well deserved any success they have met with.

From Amargo on to Durango we arrived at about 8 P.M., glad enough to rest the night after the 450 miles travelling on the Denver and Rio Grande Railway. Durango is an important and rapidly rising new town, the capital of La Plata County, and the chief mining and commercial depot of South-Western Colorado, situate on the Animas River, surrounded by a rich mineral country, which is being rapidly opened up and prospected with satisfactory results. The town is well laid out, contains several comfortable hotels, well-built and substantial stores, and altogether has the appearance of a well-to-do and thriving place. Near Durango have been discovered extensive coal fields estimated at about 25 miles by 60 miles, and a bed has been opened about 30 ft. thick. With a plentiful coal supply, and being the centre of a rich mineral district, Durango is destined to become a great city. From here I next made for Rico, the capital of Dolores County, and which had to be reached by staging from Rockwood, a depot a few miles out of Durango on the route to Silverton, where the coach goes daily over 40 miles of as rough a piece of country as any one wishes to meet with.

New York, Sept. 19.

## A TRIP TO COLORADO—LEADVILLE DIVIDENDS.

SIR,—A recent visit to Leadville has only confirmed the opinion, which I previously expressed in the Journal, that a number of mines heretofore unproductive would shortly contribute to the output of the camp, for it now exceeds 1400 tons a day, instead of 1000, as shown by the returns of a few months ago. To the east of the Iron Silver and Silver Cord Mines, on Iron Hill, at least a dozen mines are now being worked at a substantial profit to the owners. Directly north of Fryer Hill, on Prospect Mountain, several shafts have within the past few months been sunk, and the plucky owners rewarded with the discovery of mineral of a good paying character. On the Big Evans new discoveries have recently been reported, and the camp generally has a more healthy appearance as a substantial mineral producer than ever before. The Silver Cord for the month of August increased its net earnings considerably. The Iron Silver output, instead of 225 tons, is now 350 tons a day, and the manager informs me that the increased output will be continued indefinitely.

The importance of Leadville as a prosperous mining camp has been generally known to the English people ever since the first discovery, four years ago, but it is not known that the mines in that locality have during the time stated paid out in dividends \$8,570,000, and these figures do not include the amounts realised by several private companies, such as the matchless Robert E. Lee and others, which exceed a million dollars, neither do they embrace the amounts received by the individuals owners before many of the properties mentioned were incorporated as stock companies.

The list of dividend-paying mines in Leadville, and the amounts paid since the early part of 1879 up to the present time are as follows:

Amie .....	\$ 305,000	Hibernia .....	\$ 180,000
Chrysolite .....	1,600,000	Iron Silver .....	800,000
Climax .....	180,000	La Plata .....	600,000
Dunkin .....	2,300,000	Leadville Consolid. .	230,000
Evening Star .....	1,200,000	Morning Star .....	490,000
Little Chief .....	700,000	Robinson .....	700,000
Little Pittsburg ..	1,350,000		
Glass Pendency .....	25,000	Total .....	\$8,570,000

Denver, Colorado, Oct. 4.

J. FITZ BRIND.

## MINERAL WEALTH OF COLORADO.

SIR,—It cannot but be gratifying to all those people in England who are interested in Colorado to learn of the many rich mineral discoveries that are continually being made in all portions of this State, and to those who are in any way identified with the mines of Leadville, the following return of bullion shipments for the quarter ending Sept. 30, will be specially encouraging. In my statement for June 30 I took occasion to predict that the returns for the current quarter would exceed those of the former, and that the latter half of the year would furnish a more satisfactory exhibit than the first. So far my surmises have been fully confirmed by facts, and I cannot be far wrong if I predict that the bullion returns for this year will exceed those of the past by at least 30 per cent., for while those for

1881 amounted to \$13,000,000, the returns for the current year up to Sept. 30 already exceed \$12,000,000—

Eddy, James, and Company .....	\$1,245,818
Grant Smelting Company .....	343,317
La Plata .....	641,677
Arkansas Valley .....	627,987
Cummings and Finn .....	609,914
Harrison Reduction Works .....	477,186
American .....	315,407
Leadville Milling Company .....	100,184
Robert E. Lee .....	75,793
Tabor Stamp Mill .....	57,057
Placer Mines .....	50,000
Shield's Mill .....	23,000
Sundry Mills .....	8,000

First quarter .....	\$1,575,343
Second quarter .....	3,769,300
	4,018,618

Total.....\$12,393,261

Denver, Oct. 9.

J. FITZ BRIND

## GOLD MINING IN BRAZIL.

SIR,—A friend of mine who has just returned from Australia informs me that the celebrated Port Phillip Gold Mine (owned by an English company) has produced very large profits out of ore yielding only about 2½ oits. of gold per ton, and appeared utterly astonished when I informed him that in Minas Geraes (Brazil) there are mountains of ore worth 2½ oits. of gold per ton which were rejected as unprofitable. This seems to me a matter that is worth enquiring into, for I see no earthly reason why gold mines cannot be worked as cheaply in Brazil as in Australia now that the railway has been extended into the interior of the gold region. I admit that up to within the last month or two means of transit has been so difficult as to cause a serious check on mining. Up to the present everything has been carried from the coast to the interior of the gold region on the backs of little mules, consequently heavy and effective machinery was quite out of the question, as nothing could be brought on the mines that was too heavy to be slung on one side of the back of a mule. I have known a company to introduce an ordinary water-wheel for the purpose of pumping, which I will guarantee cost over 30,000£. In fact, it came under so many headings that they will never know exactly what it did cost. In order to facilitate the carriage of this wheel many important parts were reduced out of all proportion to the requirements, so that by the time it was complete it looked about as comely as Jumbo on a bicycle, and wobbled like the wheel of a worn out dung barrow. I would undertake at the present time to construct an efficient wheel of greater power for 1-20th of the amount. Of course the above wheel ought not to have been ordered, but they are not the only company who have been a little reckless under the influence of 100 or 200 per cent. dividends. However it is quite sufficient to show why low grade ore has not hitherto been worked as profitably in Brazil as in Australia.

There has been a great many letters in the *Mining Journal* lately relative to the future production of gold, some advocating one place and some another as the proper source from which we are to get our future supply. I have no doubt that all are equally sincere in recommending their favourite localities, but all are not equally experienced in gold mining, and many very good men are competent only to give an opinion on the gold formations of the particular country in which they have gained their experience. The Australian miner as a rule turns up his nose at everything that does not correspond with the Ovens, Bendigo, Castlemaine, and Ballarat; and the Californian miner gives a wide berth to all gold mining that does not resemble the placers and quartz veins of Mariposa, Downville, Sierra Nevada, Shasta, Weaverville, &c. Every great gold producing country has its peculiar characteristics, and it falls to the lot of but few men to get a substantial experience in more than one great gold producing country. Australian and Californian gold miners who have never been out of those countries would as soon think of searching for gold in the moon as in the mountains of micaceous and specular iron which have produced so much gold in Brazil. It is a fact, nevertheless, that about one-half of the enormous quantity of gold sent from Brazil has been taken from large deposits of micaceous and specular iron. I have seen a cake of gold taken out of this kind of formation containing about 512 square inches, and averaging nearly a quarter of an inch thick. Bordering the great auriferous gold region of Brazil there are to be seen hundreds of quartz reefs from 1 ft. to 100 ft. broad, all more or less auriferous, and bearing to some extent a resemblance to the quartz reefs of Australia and California. But the very rich gold centres in the rich province of Minas Geraes, in Brazil, bears no analogy to any other rich gold fields which have yet been discovered. Even the character of the quartz is different, and the gold is so fine and so equally disseminated through the veins that they often look literally yellow with the precious metal.

Creolians reared in idleness and ignorance feel nothing of the benefits of industry. In contemplating the fortunes accumulated by their ancestors, and the treasure that lie beneath their feet, they overlook the industry and perseverance which obtained the former, and which is now doubly necessary to obtain the latter. They become idle and dissolute, and sink into premature old age, doing nothing from morning to night.

When gold was discovered in Australia and California people did not merely work out the alluvial deposits and stop. The working of the alluvial deposits led up to the quartz reefs, which were immediately taken up and worked on the most scientific principles, millions of pounds sterling worth of machinery being employed in their development. In Brazil it was otherwise. As soon as the rich alluvial deposits were removed the gold fields came almost to a standstill. The rich gold reefs were there, but they had no means of introducing machinery for the purpose of turning them to profitable account. A few of the most enterprising employed large gangs of slaves with rude iron hammers to bruise the lode, the dust from which they washed in small wooden pans, and even by this rude means they did well, and managed in many instances to reach water level, which is only a few fathoms, and always a Brazilian stopping point. Once with a view of purchasing a mine in Minas Geraes I had one of those old places cleaned out, and I found the line of gold through the lode so regular and rich that it would not have been considered a bad prospect in Cornwall if the metal had been tin instead of gold. I lost this property through not being able to command sufficient capital at the time. It has since been purchased by a French company, and I have no doubt their profits will reach millions. There are hundreds of places in Minas Geraes equally rich that are now obscured by a dense tropical vegetation.

I observe that some of the contributors to your valuable Journal do not entertain such favourable views of Brazil as myself, but in looking over the route they profess to have travelled, I find they have barely entered the outskirts of the rich gold region of Minas Geraes. Minas Geraes is a very hard province to explore, and I say most unhesitatingly that no professional man with an efficient staff of 20 men can make a proper mineralogical examination of it in less than 10 years, consequently the opinions of those men who pass over it in balloons or wriggle through a few leagues of mule path without diverging from its course are of no value. Like most of your correspondents on the subject I claim to know something of gold mining. After a severe training in the deep Gwennap Mines of Cornwall I was just in time to get a good claim in the black lead at Ballarat. I dug in Castlemaine and Bendigo, and was at the rush at Deep Creek, where black eyes were more numerous than nuggets. I helped to open some of the richest reefs in Tarangower, and had charge of two of the richest companies in Australia. I have been interested in the Californian gold mines, and inspected nearly all the richest mines in that country. I have been as much thought of in the Brazilian mines as most Englishmen, and between Ouro Preto and Sabara have tested upwards of 3000 samples containing gold from as many different places. There is no place that I have ever visited that in my opinion so rich for gold as the province of Minas Geraes in Brazil, and now that the railway is completed to within a short distance of Morro Velho the time is not far distant when there will be several French and English companies at work equally as good as

the St. John del Rey. After blowing so much about my extensive experience in gold mining it would appear a little bombastic to sign my own name, I beg, therefore, to subscribe myself—  
London, Oct. 23. GOLD MINER.

P.S.—I have read with much interest the temperate letter of "Investigator," which appeared in last week's Journal relative to Morro Velho, and I am prepared to vouch for the truth of every word it contains. I have on several occasions estimated the profits which would arise from the proper treatment of their tailings at considerably over 1,000,000 sterling. Perhaps I know this fine old property better than "Investigator," and I do not hesitate to say that like the celebrated old Dolcoath it has every appearance of being larger and richer as it descends, and it is my firm belief that it will go down, down, down, until mechanical appliances fail to cope with it in depth.—G. M.

#### GOLD AND DIAMOND MINING IN SOUTH AFRICA.

SIR,—Continuing my description of the Kimberley Mine. When the treacherous formation has been stopped down to a secure angle from the surface to the igneous rock the mine will be exactly in the form of a funnel (inverted cone), with a surface area of about one and a half millions of square feet; this is a large receptacle for water during the rainy season. The treacherous formation (shale) has always been a serious liability against the Kimberley Mine, inasmuch as when the diamond formation has been worked out the sides become loose, and fall down into the mine hundreds of thousands of tons at a time, burying the claims, and suspending all profitable operations of the diggers. In order to keep some of their ground clear some diggers left a large portion of the diamond formation standing as a buttress to support the treacherous shale. But others of the diggers were not so cautious, and dug on as long as they were able to get a diamond—dug on in a manner that was most detrimental to the general interest of the mine, and especially to those claimholders who were near them, and who were anxious to work the mine fairly. Up to this time the mine was worked by individual diggers, nearly all of whom did well—very well, in fact. But as soon as what are known as the "avaricious gang" had reached the end of their tether the tricky and humbug commenced, and from that day to the present the Mining Board has been a disgrace to South Africa.

The first move of the A. G. (avaricious gang) was to get a majority at the Mining Board; this accomplished they taxed their own ground ridiculously low, and their neighbours' ground ridiculously high. They then fixed the tariff for clearing the treacherous reef overhanging their own ground at such a high rate that it paid them better to haul reef than to work their diamond claims even if they were clear; thus it will be seen they were not only recuperating their own claims but were actually making a large profit at the expense of their better conducted neighbours. You in England will wonder why any Government could allow such a state of affairs to exist; I wondered too, until I heard that money would do anything here, from ruining a rich company to roasting a nigger.

About two years ago the Kimberley diggers awoke to the fact that there were too many conflicting interests in the mine; consequently, several of them combined for the purpose of forming large companies and offering an interest to the public. The first companies which were formed were equal to any mining schemes which were ever offered to the public, and paid from the start from 40 to 50 per cent. per annum on their capital. This very naturally caused persons from other parts of South Africa to direct their attention to Kimberley, and to long for a share in an industry that could pay such splendid dividends. Here was a slant for the A. G. to act on the credulity of the public; they possessed claims in the Kimberley Mine as square as anybody, and the diamond soil looked quite as blue. They swore by all the saints in the calendar that their diamond soil was as rich as any in the mine, and if they valued it only at 40s. or 50s. per load it was for the sake of giving the shareholders an agreeable surprise. Nothing was said about having already worked to the length of their tether or the treacherous reef liability; and without any independent report—on the unsubstantiated word of the vendors—the public took the bait. The results which followed have been most disastrous, not only to Kimberley, but to South Africa generally. Now, if any person took the trouble to follow the movements of the A. G. they would find they are a little inconsistent, inasmuch as the ground they represented to the public as being almost fabulously rich they represent to the Mining Board to be worth only 2s. or 3s. per load, or of no actual value. Of course, the former was when they were offering their ground to the public, and the latter when it was being assessed, which appears to make all the difference. As soon as all the claims in the Kimberley Mine had been put into companies, the constitution of the Mining Board ought to have been altered, or, what would have been much better, done away with altogether.

It will be seen from the plan that there are 23 companies in the Kimberley Mine. There are three or four small private holders, but those marked "Stuart" are the only ones of any material value. The ground in 12 of the above companies is very rich for diamonds, and would all pay good dividends if they could work continually without being trammelled with treacherous reef. Portions of three other companies would also pay very well if properly conducted. The Beaconsfield Diamond Mining Company is situated at the extreme east of Kimberley Mine. This company was represented as possessing 16 claims, but even according to the plan they have only about 10½ full claims of 30 ft. square, and of this number, claims or rather parts of claims, 014, 015, 016, 017, 018, 041, 045, and 075 were entirely cut out before the company was formed. Parts of claims 14, 15, 16, 17, and 18 have also been cut out, and by the time they are worked down to a depth of 300 ft. they will disappear altogether. I estimate the actual ground held by the Beaconsfield Company as equal to 4½ claims of 30 ft. by 30 ft. or 4050 square feet, and I estimate the value of the Beaconsfield ground at about 800000 per claim, or 36,00000 for the whole. The promoters made the mistake of putting this ground into a company at 132,0000. A slight indisposition compels me to defer any further reference to this matter until my next letter. In the meantime, I hope your readers will receive with caution the various exaggerated reports with regard to the proceedings of the Mining Board. As far as I know there has been no actual bloodshed, and although Mr. Robinson very wisely bolted from the muzzle of Mr. Olsen's pistol, he came back again and explained to the board that "if Mr. Olsen drew a pistol on him again he should never draw one on another man," whereupon Mr. Olsen said, "I am prepared to meet Mr. Robinson at any spot he may select. He may choose any mortal weapon he likes, and I am his Moses." Robinson is a particular friend of mine, and I should be sorry to see him shot. At the same time, I must admit that his ungovernable temper places him at a great disadvantage in front of the more cool-headed Olsen. Pistol shots are frequently heard through Kimberley, and some say it is the antagonists practising. Betting is in favour of Olsen, but I doubt whether it will come to anything. Until the Editor of the Advertiser ceases from discovering comets these unnatural disturbances will be sure to continue.  
Kimberley, Sept. 27. CORRESPONDENT.

#### THE GOLD MINES OF THE WYNAAD.

SIR,—Although it is a great disappointment to me, as an investor in Indian Wynaad Gold Mines, and I doubt not to many others, in hopes, from what in their early days was said of the prospects, that we should get good dividends from carefully conducted industry in these mines. I am much pleased from the action taken by the directors of the Glenrock Company last week, that we are likely to have an end of those sensational telegrams, which used to be sent now and again to the newspapers, and which apparently were intended only to create an excitement in the share market, and were calculated to cause gambling in the shares. It seems evident now that none of the companies have as yet been able to get the gold profitably out of the pyrites; that is if gold there be, which, by-the-bye, I am now inclined to doubt. It looks inexcusable that the directors should have rashly spent so much money in machinery, opening up the mines, &c., without trying whether they could get the gold out of the ore profitably before beginning their expensive works; especially when they had the inability of the Alpha Company and the Prince of Wales Company to do it before their eyes, as described by

Mr. Brough Smyth. We hear nothing of the Glasgow Company and Mr. Severn now.  
Oct. 26. AN ORIGINAL SHAREHOLDER.

#### INDIAN GLENROCK GOLD MINING COMPANY.

SIR,—Would you allow me to suggest to the shareholders of this company that they should request the directors to call a meeting for the purpose of appointing a committee of enquiry into the affairs of the company, especially requiring that all telegrams and correspondence that have passed between the directors and the manager should be carefully scrutinised. As was stated in last week's Journal a telegram has been recently (Oct. 16) received which has been referred back for explanation. Now up to Oct. 25 no explanation has been given to the shareholders. After waiting with exemplary patience for nearly four years might I ask my brother shareholders whether the time has not arrived for them to enquire as to the real state of the case in this and kindred undertakings?  
A. G.  
Alderstone, Oct. 25.

#### THE GOLD REGIONS OF AMERICA.

SIR,—"Nemo" makes a misstatement in regard to one of the three first-class mining properties to which he alludes—Nouveau Monde. He describes this, *en passant*, as the finest gold property in the world. As this is the general opinion of all who know the property, I believe, so far as I can judge, that his statement is correct. But another reference in his letter I have every reason to believe is not correct. So far from the Nouveau Monde Company having no capital to exploit its riches, I understand from sources of information, on which I can rely, that ample working capital has been provided, and all the purchase-money paid over. I heard it stated at a private meeting of shareholders that when this had been done 60 tons of rich ore (3 ozs. to the ton) would be at once raised from one part of the mines, this being a statement of highly responsible people before first-class City men, and which I heard myself. Shareholders will, in all probability, hear of something to their advantage shortly. I have a very large interest in this undertaking, and, therefore, have endeavoured to obtain the best information I could for my own guidance.  
NUEVO MUNDO.

#### SAN PEDRO (CHILI) COPPER MINES.

SIR,—My letter in your Journal three weeks ago has failed to elicit any reply from the directors, and one would imagine that this was calculated to injure our property as much as anything could do. This does not appear to be the case, judging from the extensive dealing in the shares that I hear has taken place lately. What is the meaning of it all, and why this mystery? Is it a fact that very favourable reports have been received from the mine? If so, it is monstrous that the shareholders should not have immediate notice, as I for one should much like to pick up some of these shares cheap. If we have good reports those who have waited so long are surely entitled to take advantage of the rise. May I suggest that the directors send a copy of the last report to each shareholder individually?  
A SHAREHOLDER.  
Oct. 26.

#### NEW CALLAO.

SIR,—As a shareholder in the above company allow me through the Journal to make a few statements. First, with regard to the interest of the company under the circumstances. Second, with regard to our late engineer, Mr. J. A. Skerchly, every statement that he has made is correct about the value of our New Callao property. I am sure this has been fully proved already if anything was ever proved, in more ways than one, and if anyone has a doubt about this matter I would say, go over to the valuable mines and prove it for yourself. I am sure this company has a very bright future before it, with a property consisting of 250 acres of the most valuable nature; 16 lodges already proved on it, and one lode gives as high as 4 ozs. of gold to the ton. Will this not compare with any gold mine in the world to work for a handsome profit with good management here and at the mines, which is a very important matter. The great drawback to the company has been the petition presented last March by a shareholder, one who ought to have exercised a little more patience and faith; this has been dismissed with costs against the petitioner. We as fellow shareholders must stand by and support our directors, and we shall be rewarded for it in the future by good dividends.  
Sheffield, Oct. 23. J. E. S.

#### NEW CALLAO.

SIR,—A letter signed "N. N." has been brought to my notice. I think it fair to myself and my fellow directors to repeat that the interests of the shareholders in the 750 acres in question absolutely lapsed owing to the company's being unable to find sufficient capital for the property before May 1, in consequence of the petition for liquidation which was presented in March last. A new company is now in course of formation, to purchase and develop the land, and I venture to think that the arrangements made with the vendor are far better for the company than we had any right to expect. "N. N." may rest assured that the directors used every endeavour to retain the option; but after due consideration and consultation with many of the larger shareholders, it seemed of far greater importance that our capital should be spent in developing the existing property and so bringing the company into a dividend-paying state than to pay our last penny as a deposit for the acquisition of a large adjoining estate, which, without considerable additional funds, we could not hope to work at a profit. The extent of our property, and the extraordinary number of lodges already discovered, render it exceedingly probable that ere long we shall dispose of portions of our land to subsidiary companies, as has been done in Australia, California, Colorado, and other rich gold fields.  
London, Oct. 23. THE CHAIRMAN OF THE COMPANY.

#### NEW CALLAO.

SIR,—I read in last week's *Mining Journal* the several letters on this company. Had the secretary, I cannot help thinking, bestowed all round the kind of consideration he has shown for the vendor his reply would have been different. I have examined my letter of Oct. 9 without finding a material misstatement, and the secretary should remember that opinion and misstatement are different terms which ought not to be used promiscuously. All his quotations from Mr. Skerchly's report were contemplated by me before referring to the latter, and only substantiate the opinion they fail to alter. Every one is not so favourably situated as he is with perhaps the best map of the country, tracings of the property, and every kind of data beside him to aid his judgment, and I, being unacquainted with Venezuela, could suppose, from first information only, the New Callao property to be in a straight line, not far from the mines the prospectus stated it to be the west of, though the configuration of the district might have caused a very wide detour for a good cart road to the neighbouring mines from the same point of entry. Mr. Skerchly states the property to be "in the midst of a high range of mountains," and "it is also in a line with the gold-bearing systems of the British, Dutch, and French Guianas, which are now attracting so much attention and capital in the mining world, being situated at the north-west extremity of a line drawn from the property to the Cuyope in French Guayana, and all the auriferous mines in this vast district are on or near this line." For all I knew El Callao and other mines might have been situated at or near the north-western extremity of this line too.

The secretary's remark about the difficulty of obtaining capital is irrelevant except as a reason for not selling the option, or the 750 acres which belonged to the company by virtue of the \$30,000 already paid, if they paid the stipulated annual rental of 1800. The vendor sees no difficulty for the prospectus of the West Callao (Limited), which is the property referred to, if issued, and if "Nemo," who writes in your last issue, is correct the shareholders will see facts and what they are losing. The charges of fraud against the vendor were brought not by the company but by a very small section thereof, and is it fair that the vendor should break off from his supporters because of his and their unfortunate association; but the question is, can he do this without reckoning with the whole company? I have proposed

three queries for consideration, and it remains for the company to say what is to be done. It is quite apparent that every kind of development adds to the value of the property, and that many more lodges than were contemplated in the prospectus have been discovered by the company's instrumentality.

In conclusion, I have to inform Mr. Skerchly that there is nothing in my letter to disturb his leisure or personal interest, and that Capt. Robotham's report which amplified and corroborated his, and gave a good idea of the New Callao situation, was not received till more than half of the capital, exclusive of vendor's allotment, which successfully resisted the petitioner was subscribed. I do not quarrel with Mr. Skerchly's report, and never impugned his or the property's value, but if he would kindly read my previous letter with this he would, perhaps, be in more accord with what I would have, and still consider to be our rights.  
W. H. P.  
Kirkcaldy, Oct. 23.

#### COPIAPO MINING COMPANY.

SIR,—I notice that, in order to set free for dividend a portion of past profits which is at present locked up in stocks at Copiapo, it has been proposed to increase the company's working capital by an issue of new shares, or—which is the same thing—a re-issue of shares forfeited years ago for non-payment of calls. I trust that before determining on this course the shareholders will remember that one result would be that the profit when divided over an increased number of shares will yield in perpetuity a smaller dividend to each share. An apple cut up for five persons gives smaller to each one than if cut up for four persons. If the Copiapo board are determined to divide the 600000, or so of profit now locked up, why not issue debentures? Such a course would not be permanent detriment to the present shareholder, as it might be arranged that the debentures might be called in for payment as fast as the reserve fund accumulates.

The Panulcillo Company, for instance, had 80,0000 of debentures out in 1875. They have since paid off 45,0000, and have now current only 35,0000 borrowed at 6 per cent. That company has just paid a dividend on the shares at 15 per cent., and are said to be likely to pay at the rate of 20 per cent. on the current half year's operation. If instead of borrowing the money temporarily at a cost of 6 per cent. interest new shares had been issued, I leave those interested to calculate how much such dividends would have been reduced, and the company's shares weakened in value permanently. For my part I should prefer to see a portion of the profit still employed in assisting the working capital. The lock up is no destruction, but rather a compounding of profit.—Oct. 26. M. A.

#### OLATHE SILVER MINING COMPANY.

SIR,—For months past I have anxiously scanned your columns to find any reference to the above mine, but without success. Since it was floated in June, 1881, I have been informed of agents being sent out; that Lord, Day, and Co., of New York, were a highly respectable firm, and that the brokers of the company after paying 10s. per share on 52,000 shares had surrendered them (why, not stated) that the shareholders could have these forfeited shares at 10s. each. Is it not usual to have an annual meeting, and should not one have been held ere this. Perhaps some of your readers will be able to give some information concerning this property which may alter the views I am beginning to take of it.—York, Oct. 25. WIND UP.

#### CEDAR CREEK MINES.

SIR,—I should like to know if something cannot be done to resuscitate this undertaking. I have seen the subject mooted in some of the late issues of the *Mining Journal*, and think that the property being, as I believe, a good one, something should be done to again work the mines.—Oct. 24. A SHAREHOLDER.

#### THE CHILE GOLD MINE.

SIR,—The Chile Gold Mine is turning out with 30 stamps 2000 ozs. each month, and soon the output will be further increased by the addition of 10 more stamps, and then 20 more stamps will be erected, making 60 stamps, and there seems to be no doubt about the output in a twelve-month being 4000 ozs. per month, or over 100,0000 per annum.  
VIL.

#### THE EMPEROR OF RUSSIA'S COPPER.

SIR,—Our attention has been called to a paragraph in to-day's Journal respecting a parcel of about 400 tons of copper lately belonging to the Emperor of Russia, and which quantity had been accumulating since the year 1871, as all attempts to effect a purchase during the interval had proved abortive. Negotiations for the metal came to a successful issue in January last, and the whole amount was subsequently disposed of to consumers, the delivery to whom is now completed.  
Metal Exchange, Oct. 21. JAMES AND SHAKESPEARE.

#### MINING IN NEW SOUTH WALES.

SIR,—As the Hawkins Hill Gold Mining Company is also virtually an English one now, so far as the working capital is concerned, the following report on it from the Sydney Morning Herald of Sept. 4 may probably interest many of your readers:—  
Under date, Aug. 29, the manager of the Hawkins Hill Consolidated Gold Mining Company writes:—

Since last report have fixed the compressor, air-receiver, and boiler, in position, and nearly completed shed to cover same. Will soon be ready to start the rock-drills. By last mail from London received advices of a powerful double cylinder winding-engine, for the deep shaft, ordered from the firm of Pollock and MacNab, Manchester, which will combine all the modern improvements for hauling purposes.—Krohnman's: Still bailing, and so far reduced the water from 450 feet down to the 510 feet level. Purpose commencing work here at the 200 and 425, and drive into Rapp's ground, recently acquired by this company. At the 90, in Beyers and Hottelmann's, continuing the drive south, broke down 7 tons; portion shows fair stone, in which we find, on hanging-wall, some of the slate painted with gold.—As this ground has not been disturbed to surface, there is plenty of space for a remnant of some of the old deposits. Started two shafts at 400 ft. level in Carroll and Beard's.—Crown Prince: Ran battery for 10 days' crushing; result, 120 ozs. of retorted gold; tables and pumps so defective had to stop until replaced by new ones, on which the carpenters are now engaged. Continuing the drive south on Frenchman's vein at 170, uprising, and sinking winze, in which we find leaders and splinted country in depth. From this drive raising stone for another crushing, as soon as the battery is complete. Cross-cutting for Stevens' vein from this level, and expect to cut it to-morrow. On this vein, at 100 ft. from the surface, the Patriarch has struck some very rich stone close to our boundary, which if it continues will prove a valuable discovery for this company. In continuation of the excavation for Krohnman's tramway, cut a new vein showing gold, close to the Star engine on the surface, and are now raising quartz which, with the dig, shows nice colours of gold. This find is looked upon as a discovery full of promise, and so far a vein unknown on the hill. The practical exploration of seeking for the surface shoots on the northern portion of this company's property has yet to be commenced, and can only be tested by systematic and continuous cross-cuts. In such a country, abounding with so many productive veins (some of which yielded very rich results in the early days), it is most extraordinary that an effort hitherto has been made to prove either the nature or the number of veins that exist in this part of the hill, which in any other country, would have been riddled with cross-cuts. It is this that has made the Gympie Mines so successful of late years, and it is the only method whereby practical and systematic mining can be accomplished. In view of this, have commenced several surface cross-cuts, at various levels, from which we may safely anticipate satisfactory results.

Also as the Wentworth Freehold, near Orange, New South Wales, is probably now (or shortly may be) the property of an English proprietor, the following news, just to hand, may not come amiss to them, proving as it does that when the Uncle Tom claim was sold to a Victorian Company and became the New Reform its luck did not change at the same time.

The mining manager of the New Reform Gold Mining Company, under date, Lucknow, Sept. 1, reports:—  
I have much pleasure in reporting that I have taken out a bonanza from the Industry vein, which I estimate at 50000, and that there are very strong indications of another in close proximity. The Perseverance vein shows a decided improvement this week. I am now stripping the lode in the Uncle Tom claim preparatory to breaking down. The battery is continuously employed upon the poorer classes of ore. All the machinery is in good working condition; and, upon the whole, the mine shows far better than it has done for a considerable time.

This is only a small leasehold mine of a few acres (out of the 1000 acres freehold), and reverts in a few years to the freehold again. But in the meantime it is proving, for the whole estate, the value of the other abandoned claims on the same line of reef (10 or 12, I believe, in all), out of which, before they were worked down

to the pyrites, about 6 tons of free gold were taken some 20 years back. I was speaking to Mr. B. O. Holtermann, of Hill End fame, yesterday, and he tells me he was working on the Wentworth at that time, and saw buckets full come up which held more gold than stone. But that at that time it was believed that when the pyrites came in the free gold ran out (the treatment of pyrites being also utterly unknown), the miners abandoned their claims one after another when they struck the pyrites, although since the resuscitation of the above claim, and that deeper sinking proved how little water there was really to contend with, and how much better the reef shaped, it is these very pyrites which have yielded such splendid results, shipment after shipment realising from 300 ozs. to 900 ozs. gold per ton, and leading to this one small lease being floated in Victoria for 60,000l. Such are the chances and changes of gold mining. In my last letter I referred to the Nymagee Copper Mine (among several others), and the following report, just to hand, shows it does not shape badly for a very young mine, one lode being 40 ft. wide in places:—

**Barton's Shaft:** During the last month Barton's shaft has been skidded down to the bottom, and made ready for opening out another level, which will be proceeded with immediately. The north end in the 40 has been extended a further distance of 10 ft. 6 in., making in all 233 ft. 6 in. from shaft. Rundle's winze, in the 20 north, has been sunk a further depth of 16 ft., making a total of 99 ft. below the level, another 10 ft. sinking will put this winze through to the level below, and open up a good stop on sulphureous ore.—**Harcourt's Shaft:** The adit shaft south has been holed to No. 9 stop; the ground well filled and a fresh contract let for raising ore. I am cutting a new chamber in the 20 Harcourt for convenience in trucking and hauling the grey ore recently discovered shaft, for 17 same level.—**Pope's Shaft:** The south end in the 40 has been driven a further distance of 12 ft. 6 in., making in all 213 ft. 6 in. from shaft. This end is still in good sulphureous ore. In the 70 north good ore is still being raised and promises to yield large quantities, the lode being 40 ft. wide in places. The grey ore recently found in section 17 is looking well. I am now driving south on it in the 20, where the lode is fully 12 feet thick of solid metal. I am also sinking a winze in the same level, where the ore is equally good, and which will probably extend down to the good sulphureous immediately below it. Operations in prospecting shaft, section 6, have been discontinued for the present, the men being required for other work in the mine.—**Smelting Works:** I have four furnaces now at work, two of which are reducing and two roasting, and I hope to have more at work soon, as there is every probability of the supply of firewood increasing. Ore raised for the month, 400 tons; ore smelted for same period, 313 tons, producing equal to 59½ tons fine copper.  
Sydney, N.S.W., Sept.

R. D. A.

#### ROCK-BORING MACHINERY.

Sir,—At a time when machinery of this class is brought into prominent notice by the recent public trials of various patent rock-drills it will interest the readers of the *Mining Journal* to know what has been done at one of the mines where rock-drills were first put into operation with practical success. At the Foxdale Mines, in the Isle of Man, about five years ago an air-compressing engine, with 20-in. cylinders, was erected, and the mine equipped with a proportionate number of drills and other accessories. Since that time some miles of levels have been driven, and 165 fathoms of shafts sunk at from three to four times the speed attained by hand-labour, and at a saving of from 20 to 30 per cent. in the cost.

Without entering into detail, it will be at once evident to those acquainted with the subject how very different would have been the position of these mines at the present moment if those entrusted with its management had not decided to put down this plant when they did. At the present time cross-cuts for double tramroad, 43½ yards from surface, are being driven in very hard granite at the rate of 30 ft. and upwards per month with one drill, whereas by hand-labour about 8 ft. was all that could be driven in that time. The shaft has with the aid of rock-drills been sunk below the 185 at the rate of 2½ ft. per month, as against about 6½ ft., which is all that could be done by hand-labour, and at a considerable saving in the cost per fathom.

A new engine-shaft is now being sunk 13½ ft. by 10½ ft. to reach the lodes at a depth of 250 to 300 fathoms from surface. For the last five months since the sinking has been carried out by two drills the average monthly depth attained has reached 33 ft. at fully one-third less cost than could possibly have been done by the old mode of working. To attain such results as these great care and judgment must have been exercised by the management in selecting the very best machinery and accessories available.

To this and to the energy of the agents and engineers at the mines, as well as the facility and willingness with which the men took to the drills, these most successful practical results are due. It may be added that the whole of the plant was manufactured by the Sandycroft Foundry Company, near Chester, well known as makers of mining machinery, and of the very highest class. That firm have not yet exhibited their rock-drills, but it is stated that no other engineering firm in the country have fitted out so many mines as they have with this class of machinery.—Oct. 26.

T.

#### SMELTERS' PROFITS, AND THE MINERS.

Sir,—No one can be more desirous than myself to see miners and mine adventurers obtain the best possible price for their ore, but I have been connected with mines quite long enough to learn that there are many things to be considered by mine adventurers before they add to the ordinary risks of mining the still greater risk of smelting; and I have yet to learn that at the present time Cornish miners—whether producing tin or copper—have any real grievance to ventilate. Upon this point there appears to be a wide difference of opinion between your general Money Article writer, who may be supposed to know something of commerce and finance, and your Cornish Correspondent, who is, no doubt, in the confidence of both miners and smelters in Cornwall. Fortunately I have not seen the pamphlet to which they allude, and as both admit that the figures contained in it are worthless, I prefer to take figures—those of Mr. Robert Hunt given in the Official Government Returns—which both appear to accept as reliable. The Cornish Correspondent states that the pamphlet "is dealing with an admitted grievance," and then goes on to say that there is not the smallest difficulty in the larger mines smelting their own produce, and then sending it straight into the market for themselves in the metallic form. This he regards as the only remedy for their present grievances (?). Originally every mine did smelt its own produce. Then independent smelting-houses were established to which the black tin was taken and from which the white tin was returned after a certain deduction as returning charges. Smelters then were not tin merchants; that is a position of recent growth.

It would have been more interesting and instructive if the Cornish Correspondent had added a few words stating whether he considers it advantageous or otherwise that the miners should receive payment for their black tin (for that is what it amounts to) in white tin or in tin bills. Both have to be converted into cash, it is true; but when I am in want of money to meet a cost-sheet I must assert my decided preference for the smelters' acceptance as compared with tin ingots representing the same amount. I know that Wheal Owles and some other mines stocked their tin when prices were low, and made it over as collateral security to their bankers in raising money from them to carry on the mines, but this was only possible because so few mines adopted the practice. Had it become general I doubt whether any one so well versed in mining matters as the Cornish Correspondent would maintain that the money could still have been raised from the bankers. Surely he will say that the bankers could not (I do not say would not) have lent it, and the money must have been drawn in the shape of calls from the adventurers, to the manifest injury of the Cornish mining industry, which was quite near enough to annihilation during the last depression, even without the increased evils which would have resulted from the adventurers having to meet smelting costs as well as mine costs, for it must be evident that even if 54 men conduct the whole tin smelting operations of Cornwall and Devon it would be impracticable to employ at each of the 250 mines only one-fifth of a man for a smelter, or in other words, adopting the pamphleteer's figures, 4s. worth of labour per week.

This brings us back to the question of the revival of the practice of paying for the ore with white tin instead of tin bills. Will the mine adventurers like it? I think not. The smelter with an established connection can make a fair commercial profit, but if the miners of only 100 tin mines are running about the market with their small parcels—some with 1 ton, some with 5 tons, and few with over 50 tons—for which they will want, nay, must have money at once, it does not require a great political economist to see that the

prices will be ruinously depressed, and that the profits, if any, will be transferred from the miners and smelters to the London metal agents. The first point is to know how much per ton margin there will be to play with. I will omit fractions as they are really of no importance to the argument. The Official Government Returns show that the miners received 647,104l. for 11,678 tons of ore containing 7890 tons of metallic tin in the ore, that is 82l. per ton. The smelters resold this tin for 768,954l., or 97l. 9s. 3d. per ton. This difference of 121,850l. has to be disposed of. The produce of the tin ore was about 13 in 20, or 65 per cent., so that 1½ ton of ore would have to be smelted for each ton of white tin produced, so that, in effect, the smelter receives 10l. for extracting the metal, sending it to the market and selling it, and for interest upon the capital employed in carrying on the business. The results will, however, best be seen by taking the aggregate. It is seen that the consumers paid 768,954l. for the tin in question, and he would be indeed a clever dealer, whether smelter or merchant, who would net this sum without payment of 7½ per cent. in commissions. This is making no allowance for bad debts although these are sometimes made. This 7½ per cent. amounts to 57,670l. The cost of smelting at only 2l. per ton of black tin would be 23,356l., together 81,000l., which deducted from 121,850l. leaves the real margin in favour of the smelters at 40,850l., which is almost exactly 6½ per cent. upon the 647,104l. paid to the miners for their ore. Now there are few tradesmen, whether smelters or others, who would care to take all risks for 6½ per cent. on the turnover, and as a matter of fact it is not the legitimate percentage on the turnover but the successful speculation, backed by abundant capital, that yields the smelters' profits.

These are the facts which would render it utterly impossible for any outside smelter or combination of smelting-miners to realise profits. These are the facts which led to the disastrous failure of a similar movement nearly half a century ago. And these are the facts which should be considered in determining whether it is desirable for miners to smelt their own ore. I have only here referred to tin, but with regard to copper the result to outside smelters would be still more ruinous. Even the Cape Copper Company are again selling some of their ore by public ticket, and they have practically ceased to be buyers.

CUPRUM.

Illogan, Oct. 24.

#### GOLD IN WALES.

Sir,—Respecting Mr. Dean's remarks in the *Mining Journal* a few weeks ago on "Gold in Merioneth," I wish to inform the public that at the time Dean was in Wales the districts were then in their infancy, and many of the miners who had several years' experience at home and abroad will prove that gold has been found in paying quantities with proper appliances. I know this from personal experience. All the reefs contain 8 to 12 dwts. per ton. It is evident that gold is extracted from the various reefs to the extent of 8 and 10 ozs. per ton, especially when the quartz can be delivered at the machinery for 5s. per ton. I am certain that the time is not far distant when we shall find Wales and its precious metal in front of the mining world. In the meantime, I will give the result of one of the mines in North Wales. The following will show the existence of the precious metal:—

	Weight.			
	Ozs.	dwt.	grs.	Lodestuff.
July ... ..	94	11	0	from 127 0
August ... ..	104	3	12	" 158 0
September ... ..	160	19	12	" 288 0
October ... ..	146	5	12	" 217 ½
Oct. 26.				
				T. J. E.

#### GOLD IN WALES.

Sir,—Referring to J. L. M. Fraser's letter in last Saturday's *Journal*, I am happy to inform your readers of a wonderful discovery of gold which was found near the new railway between Bala and Festiniog, in the new mineral district of North Wales. The precious metal was found in copper and lead deposits, which lodes are found 12 to 15 ft. in width, full of mineral, chiefly copper. The present appearance at surface strongly recommends itself, as there are all facilities such as railway, roads, water-power, hundreds of acres of land, and numerous lodes, which will produce mineral in paying quantities. With those facts, I would strongly recommend a visit to the above district, where capitalists may select property without paying promoters' money, and be well rewarded.—Oct. 26.

Z.

#### SILVER AT CALLINGTON.

Sir,—My chief object in writing these letters is to obtain practical information from some of our skilled silver miners in order to encourage the search for this precious metal. Having made a few brief observations concerning the old Ludcott Mine, started 20 years ago, between Callington and Liskeard, I will merely add that the mass of silver ore was not to be despised, because it fetched more than 20,000l., and what is very remarkable it did not make its appearance until it reached the 90 fm. level, and then it vanished. (It is a noteworthy fact, too, that during this same year a marvellous discovery was made at East Caradon, so that it was announced to be the richest mine in Cornwall, perhaps about half the value of the celebrated Devon Great Consols, which paid enormous dividends for more than 10 years before this period). But to return to the silver mines of Callington. There was once a silver mine named Wheal Jewell, about two miles to the south-east of Langford and Brothers, and another still further east named Huckworthy, near Morrabridge, both of which produced magnificent specimens of very rich silver ores, and also native silver. Is not all this a proof that there is a long channel of rich ground in the Callington district both in an easterly and westerly direction, in which at different periods lodes of the richest possible silver ores have been discovered?

AN OLD AMATEUR.

#### THE CALLINGTON MINING DISTRICT.

Sir,—I find there is another piece of ground granted by his Royal Highness the Duke of Cornwall within three miles of this town for 21 years, at 1-20th royalty. The stratification in which the lodes are embedded is very congenial clay-slate, with granite on the southern boundary of the sett; the formation of both are similar to that found in all the productive mines of the district. There are five lodes passing through this property—Watson's lode of the Devon Great Consols; the Bridge lode, now so productive in the Bedford United Mines; the Gunnislake (Clitters) lode; the Hingston Down lode; and a large well defined tin lode, the capels of which produce a fair percentage of tin. The sett, I am informed, is granted to a very influential party, and the mine to be known as New Gunnislake. One most important feature in this property is its proximity to so many good copper-producing mines. There is a large stream of water running through the sett available for dressing purposes, and an abundance of timber on the property obtainable at a small cost; this will effect a great saving in carriage. The Calstock and Kelly Bray Minerals Railway passes within 100 fathoms of the sett, which is also of very great importance. Taking into consideration the situation of this mine sett, surrounded by such rich neighbours, I can hardly call it a speculation but an investment for capital. I hope the New Gunnislake Mine will prove as rich as its neighbour, the Gunnislake (Clitters).  
Callington, Oct. 26.

#### GUNNISLAKE (CLITTERS) MINE.

Sir,—Mr. Wm. Edistone's letter on this mine in last week's *Journal* deserves attention, and for the following reasons—First, the shareholders do not expect a dividend at the coming meeting to be held on the 3rd inst. Second, the letter is the production of a gentleman who probably is no shareholder, but who wishes to become one. His residence in the district is also a noteworthy fact, inasmuch as the position and prospects of the mine have been for some time past the topic of current conversation amongst mining men, and it is a curious coincidence that almost concurrently with the publication of this letter the official report is written, in which only the value of one level in the mine is given. It may be a gratuitous assumption, but it strikes me very forcibly that Mr. Wm. Edistone is an officer of the company who is desirous of securing some shares, and who to effect his purpose attempts to depreciate the value of the property by call-

ing attention to a circumstance or condition which would possibly influence persons non-resident in the district. I cannot help directing particular attention to the publication of a meagre (I might almost say) damaging report, and the appearance of an equally damaging letter, and I submit that this should be enquired into at the next meeting, as it is well known the company now they have spent 5000l. in machinery are in a splendid position. Should the officers of a company be allowed to deal in shares and work a property to suit their purpose? Is it consistent for the agents to recommend the expenditure of about 5000l. in machinery, &c. if the mine is really so poor as the last official report would lead outside shareholders to believe?—*Taristock*, Oct. 25.

B. A.

#### WHEAL CREBOR.

Sir,—At our inspection of this mine we found its general condition substantially good. The 120 has large bodies of ore in sight, accessible for stoping purposes. There are three distinct bunches of ore standing at the bottom of this level, extending from east to west for more than 100 fms., and many parts of which are valued at more than 100l. per fathom. The 132, or bottom level, west of new shaft, is now entering the middle or Andrew's course of ore, and the forebrest at this level presents a lode of the greatest promise; and I believe will be found to be now entering the great course of ore called Andrew's Bunch, which produced so much copper in the upper levels. The new shaft recently made from surface to this depth has fully met all requirements. The mine is now in a position to make large profits. Our private report deals with the mine at every point.

JOHN BURGAN AND SON.

#### WEST AND NEW WEST CARADON.

Sir,—These two mines have attracted much deserved attention. The productiveness of the various points in these mines has been followed by a great rise in the price of the shares. These mines have the great advantage of being drained by South Caradon, thus making their working expenses almost nominal. A further considerable rise in the value of the shares should be looked for.

JOHN BURGAN AND SON.

#### THE GRIFFIN MINE, ITS DIRECTORS, AND ITS ARTICLES.

Sir,—Will you kindly allow me to ask through the *Journal* why the directors of this mine should not act in accordance with the Articles of Association? It is expressly provided therein that a general meeting of shareholders shall be called annually on the third Monday in October. No such meeting has been called, although the fourth Monday has passed. I remember that last year the meeting was postponed, and in the interval proxies were collected (principally on vendor's shares), and by means of these the shareholders present were outvoted. Does the present state of affairs render necessary the repetition of last year's tactics? If so the shareholders will be justifiably indignant at such a result of the glowing prospects held out last year. Those who like myself are constant readers of the *Mining Journal* will ask what was the meaning of the letter sent to that paper, in which the new director (Mr. Maudslay) announced that he intended to subscribe a further amount of the capital for developing these mines in order to make this enterprise one of the most successful in the principality. I am afraid Mr. M. has not carried out these intentions, or the shareholders would have been called together at a proper time and rejoiced to hear of dividends. But even if the directors have failed, had they not better act in accordance with the Articles under which they hold office, and call the meeting and candidly admit their failure? Delay will not improve the temper of the expectant shareholders. Even directors should be bound by Articles of Association of a company, and surely some of them must know of Clause 45. It does not seem right that they should require to be reminded of it.

London, Oct. 25.

A. J. G.

#### WEST OF CORNWALL—ST. AGNES.

Sir,—Driven home by stress of weather from the far west of England, it may be interesting to those who know St. Ann's Beacon to be informed that there is a group of tin mines running east and west south of the Beacon, which are likely, in the opinion of old miners, to rival anything in the county in respect of development and production, and largely on a self-supporting system.

West Kitty appears as the nucleus which struck the right vein; a rush for shares followed, and placed them at a high premium. Almost at the same instant West Kitty began to develop, and then shares found purchasers among the West Kitty bondholders. Then followed West Polbreen, and next came Trevaunance, all in the same run, and all commingling and sharing relatively the premiums as they came within the charmed circle. Next adjoining the sea to the west is Wheal Coates, which is under the same management. The attractive feature in the scheme is the ease with which the same lodes are followed step by step to a lower level as each mine to the west is entered upon, until in the most western one, the Wheal Coates, and the deepest mine, the levels come on in succession east; and by the time the present deepest level in Wheal Coates comes beneath those mines adjoining the Beacon there would be a depth from surface exceeding 200 fms. The old miners are delighted with the whole scheme, as they appear to comprehend it for working three or four continuous miles upon the same lodes, and pronounce it the finest combination that has ever been carried out in the county under one management.

Each mine pumping its water to surface and using it for dressing and other purposes; then it passes on to the next mine, and this additional water supply goes on increasing from mine to mine until the volume at Wheal Coates is ample for working on a scale of the greatest magnitude.—Oct. 26

TOURIST.

#### IMPROVED LEAD SMELTING FURNACE.

In connection with the constantly extending silver-lead trade of Colorado, Nevada, and neighbouring states, Messrs. Lane and Bodley, of Cincinnati, have introduced a new blast-furnace, which it is claimed has many advantages. It combines maximum strength with minimum weight, it has no piece, but admits of ready transportation, as the total weight is small, the cost of transportation is correspondingly so, there are no cast-iron parts liable to break, all parts are readily removable for repairs, all noxious gases which escape are freely carried off, and in practical working it has been found that all the essential parts are of very convenient form. In the new furnace, wherever the use of cast-iron has heretofore been objectionable on account of liability to breakage from unequal expansion, or other cause, wrought-iron has been substituted, also in other places where the use of cast-iron resulted in great weight, a similar substitution of wrought metal has been resorted to, thus producing a furnace of maximum strength and durability, with minimum weight. The ground plan of the crucible binders is rectangular, with the corners removed, thus allowing the upright supports of the deck plate to be entirely independent of the masonry within the binders. The uprights are wrought-iron I beams in lieu of the usual cast-iron columns, thus avoiding weight, securing more room, and the flanges on the sides forming excellent racks for supporting bars and other implements used about the furnace. The usual troublesome cast-iron deck plate is superseded by I beams, and the space between them being utilised as a channel to conduct off the noxious gases and fumes that escape to a greater or less extent from all furnaces, owing to the pressure within, due to the blast pressure; from the channel above mentioned are flues to conduct the gases, &c., to the outside of the stack building. At the feed door is a ledge a few inches high, thereby requiring the feeder to throw the charges over it into the furnaces, thus preventing the charges being pushed in, so that the fine materials fall in all on one side of the furnace. The space between the crucible and the deck plate can be filled with brick and water tapers or spray jackets, or water jackets of cast-iron, wrought-iron or steel, with closed or open tops. These jackets are constructed by forming the sheet next to the fire into a box 6 in. deep, the corners being shaped up without cutting, welding, or rivetting (the back is formed by a shallow box fitting into the deep one), resulting in a presentation of no welded or rivetted joint to the action of the

fire, excepting where the bronze metal tuyere thimble is secured by countersunk rivets to the inside sheet of the jacket, and from which no trouble has resulted owing to precautions taken in the details of construction. The end jackets do not run down to the crucible, the spaces so left being closed by small jackets with the tap hole through them; these small jackets can readily be removed without disturbing the main end jackets, in cases of necessity admitting the introduction of a bar without running down the furnace.

There is frequently considerable trouble in keeping jackets properly cool when first starting, upon account of their not being protected with a layer of chilled slag; this trouble is found to be entirely overcome by the use of an auxiliary supply, obtained through the connection to the blow-off hole in each jacket, which supply is only used under the circumstances above indicated. The brace under the slag spout is notched in steps for the purpose of catching the edge of slag-pots, thus holding them level without putting a block under the foot of the pot carriage. Such block being a source of annoyance as the slag-pot wheels frequently strike them causing the hot slag to be spilt.

#### REPORT FROM CORNWALL.

Oct. 26.—If the smelters had been as ready to rise as they were to fall the early part of this week would have seen the recovery in part, if not altogether, of the reduction caused by the fluctuation in the London markets of the previous week. However, we all know that they are very cautious men when advances are in question, and so far "Respublica's" hints may tell. The criticisms which he has received seem to have told on "Respublica" himself, and his reply is announced as forthcoming to-day. The strong language which has been used concerning him he will be easily able to meet or ignore, but not so easily will he be able to justify the exact form of his remedial proposals. Nor can anything be done in any way that will relieve the mines from the task of facing directly, or at second hand, the fluctuations of the London market. What we say is that there are profits to be got out of the operation of smelting which the larger mines should keep to themselves. For the rest there is no reason why it should not be quite as profitable to deal with the metal broker at first hand as intermediately through the smelter, nor would the extra burden of responsibility upon the management be really serious in the present day, whatever it would have been in the past. The general feeling in the county is that we do not want any more smelting companies, whether formed of associated mines, or in any other way. All the efforts made in that direction have not really improved competition, and have not benefited the mines permanently one iota. Of course a new effort might turn out differently, but experience is all the other way. Still we are glad to see "Respublica" moving. Some day or other no doubt the matter will be agitated up to a point when something will be done, and without agitation it is certain that no step will be taken. Smelting reform and dues reform are about the two most hopeless points of local mining enterprise.

We have often been struck with the remarkable difference there is in the characteristics of different bodies of adventurers. There is Wheal Agar, for example. In some hands that mine would have either been paying dividends long ago or knocked; but the shareholders seem to be as content to go on paying calls as, in some concerns, they are to be taking dividends. No doubt they have a capital mine; but why they should be so very well satisfied to look only to the future is a mystery. The delay of good things at Wheal Agar is not casual, but symptomatic, and the patience shown is really wonderful. It would be easy to reckon up a score of abandoned mines, which would now be flourishing mines had only a tithe of the patient hopefulness displayed at Wheal Agar been shown by their adventurers; and really, so far as present results are concerned, Wheal Agar might almost as well be in the same category. There must, as we have said, be a very remarkable difference in the temper and constitution of different bodies of shareholders—a phenomena which hitherto seems to have escaped notice.

The heavy floods which have visited many parts of the West of England during the past week have not materially affected our mining districts either in Cornwall or Devon; but there seems every reason to believe, from general appearances, that the winter is likely to be a wet one, and to throw a very heavy duty on the pumping-gear generally. All the more need, therefore, that it should be thoroughly overhauled before the pinch of the pressure comes. This is one of the directions in which the proverbial "stitch in time" very often saves a great many more than nine. Too many mines have had unpleasant experience of the untoward results of overloading pitwork that has not been so heedfully cared for as it might have been, not to give plenty of point to this word of warning. Frosty winters are bad enough so far as retarding dressing operations go; but wet winters are more serious, after all, in their effect upon work underground.

There is no unmemorialised man in England to whom the county lies under a deeper debt than it does to Richard Trevithick—one of the group of Cornish worthies on whom Mr. Worth lectured at the recent Polytechnic Exhibition, and of whom he spoke as probably the greatest all-round inventor the world had ever seen. It is no credit to popular writers upon engineering matters that Trevithick should have been cold-shouldered into oblivion while Watt and the Stephenson were written into far more than their due meed of fame, great as that meed undoubtedly was. This injury to his memory can never be recovered, but something might surely be done in the county of his birth, as proposed, to associate his name with a work of popular utility. Need his grave at Dartford lie any longer unmarked by monument or record of the great man whose bones lie beneath its sod?

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE

Oct. 26.—In the manufactured iron trade there is still a reticence on the part of merchants to give out orders at the advances lately declared. They are not wholly unsuccessful in their attempts to place their contracts at prices which carry only a moderate proportion of the declared advances—say 5s. instead of 10s., and so on. Makers as a rule, however, are firm at Quarter-Day rates, and refuse to give way much to buyers. The makers of galvanising sheets are particularly strong at 8l. 10s. for singles, and 9l. 10s. for doubles. Marked bars are 7l. 10s., 8l., and 8l. 12s. 6d. Pigs are tame as regards demand, whether native or foreign sorts are concerned. But prices are stiff. All mines are 67s. 6d. to 70s., part mines, 55s. to 57s. 6d., and cinder pigs, 42s. 6d. Tredegar hematites are quoted this week 3l. 10s., but without sales. Derbyshire pigs are 50s. to 55s. The Coal Trade is without much change on the week. The Staffordshire collieries proper are doing more in manufacturing coal than for some months past, the competition from Cannock Chase still showing a falling off. Prices are well maintained on the basis of the 1s. advance in furnace coal. Forge coal is 7s. to 8s. 6d. at the pits, and furnace coal 9s. to 11s. per ton.

Alderman Avery, the Mayor of Birmingham, has accepted the office of President of the Mill and Forge Wages Board, and the board has been called together for Monday next in Wolverhampton, to consider the application of the ironworkers for an advance in wages.

A representative meeting of miners at the Ball Inn, Horseley Heath, Tipton, this week made arrangements for a general Conference to be held in November, and pledged itself to do everything possible to secure an advance for the Salop and Cannock districts. A mass meeting of colliers, to which this decision was communicated, passed a resolution condemning over production, because of its tendency to lower wages, and urged the formation of a solid union of all the men in South Staffordshire and East Worcestershire.

Messrs. Jones, ironmasters, of Dudley, Walsall, and Westbromwich, filed their petition in the Walsall County Court on Friday last, with liabilities estimated at 76,000l., most of which are secured. The firm, which is composed of six partners all of the surname Jones, carried on several businesses at the Buffery Ironworks, Dudley, as ironmasters; at the Bullfield Cokeworks, Rowley Regis, as coke manufacturers, under the style of John Jones and Sons; at the Old Buffery Colliery and Brickyards at Dudley, as coalmasters and brick-makers, as the Old Buffery Colliery Company; at the Eagle Iron-

works, Westbromwich, as the Eagle Coal and Iron Company; and at the Green Lane Furnaces, Walsall, as the Walsall Iron Company.

The directors of the Hamstead Colliery announce that the second or drawing shaft has now reached the Thick coal at a depth of 611 yards, and that the coal is of a good quality and 24 ft. thick. Preparatory gate-roading has been driven from No. 1 shaft to within a short distance of the western boundary, and to about 800 yards from the shaft, and a pair of roads north of the shaft to a distance of 956 yards. Altogether 3690 yards have been driven through. The quality of the coal is good throughout the entire distance, and there is scarcely any variation in the thickness of the fuel or in the lie of the mine. As the railway siding, wharf, tramway, and other works are in a forward state the directors hope shortly to put out coal into the market both by rail and canal.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

Oct. 26.—The strike question is the one that is now being discussed in the mining districts of Derbyshire and the West Riding, and the time is fast approaching when it will be solved one way or the other. The agitation has had the effect of raising the price of coal at a distance from the pits, but without benefiting the mines. Some thousands of notices have been given, and the whole affair would be most formidable did it rest on anything like a solid foundation, but it lacks the most important element by which strikes have been hitherto carried—the money to support even on a small scale the men who have promised to turn out if their demand is not conceded. At several of the collieries in Derbyshire it is evident that there will be no strike, as the men have had certain percentages granted, and the consequence is that most of them are satisfied; but at most collieries there are a number of men, small indeed, but who, preferring a row or a change, generally bring the others with them, being unwilling to undergo the taunts of their fellows. At Staveley there has been no sign of an outbreak, the wages paid there being fully equal to what is given by any of the employers, including advances. In South Yorkshire a great many men have given in their notices, and apparently intend fighting, but when the hour comes it is believed that many of them will have estimated the cost of so doing. The owners have offered a 5 per cent. advance up to the end of the year, and thence another one if the books show that prices have improved over what they have been for the past year or so. The men employed at the pits of Earl Fitzwilliam, at Elsecar, had a meeting and agreed to demand an advance, and a deputation waited upon the manager for the purpose. Their intention having been made known to Earl Fitzwilliam, he made it known to the men through their agent that the notices would be received, but that his agent was instructed on such being done to give notices to leave the houses they occupied under his lordship. And Earl Fitzwilliam never breaks his word, and on a former occasion when the men struck for an advance of wages he informed them that he was quite indifferent to raising the coal belonging to him, and was willing to leave it for the advantage of his successors. The men on that occasion gave way, so that there is not now much likelihood of a strike at Elsecar. It may be said that some interest is felt in the result of the Conference which is to be held in Manchester to-morrow for the purpose of considering the best means for raising a fund for the support of the men who may go out on strike.

In Derbyshire the Coal Trade has been good, the prospect of a strike having stimulated merchants and consumers to buy largely, and large quantities of household fuel in particular have been forwarded to the Metropolis by the Midland and Great Northern Railways. A good deal has also been sent westward by the former line. The miners are consequently working full time all round instead of about four days a week, as was the case in summer. A better demand has also sprung up for engine coal for the same reason as we have given, for manufacturers do not like running the risk of being short of fuel, owing to the stoppage of any number of collieries, or having to pay an exorbitantly high price for it. Steam coal is not likely to be so much affected by a strike as other descriptions of fuel, and there is plenty of it, the production in winter in particular being generally considerably in excess of the demand. The furnaces used a good deal, as well as the locomotives, but their exports are most moderate. This is in consequence of there being no near port for shipment, but this should be remedied should the proposed railway from Chesterfield to Hull be carried out. At the iron-works in most parts of Derbyshire, as well as in Nottinghamshire, a fair business has been done, there being a large output of pig, with comparatively small stocks in hand. The foundries have been working steadily, but there has not been any material improvement as regards rolled iron.

In Sheffield the proceedings of the miners have been narrowly watched, and already the factories have felt the effect of the agitation, by having to pay a considerably increased price for their coal. The rolling-mills have been working well, and there has been a heavy output, in particular of armour-plates for different governments. Ordinary ship and boiler-plates, as well as sheets, telegraph and other wire, bars and hoops, have also been in fair request. Crucible steel makers have been busier of late, whilst there has been a fair demand for Bessemer of special qualities. Bessemer rails have also been more extensively produced; but prices have not improved, the competition between our own makers, as well as those on the Continent, more especially Krupp's, having been keen for the contracts that have been tendered for. The cutlery houses have been working well in table and other knives, and some good orders are now on the books for delivery before the end of the year. In edge tools, files, and saws makers have been kept well going. At the foundries scarcely so much has been doing in light work, but at some of them there has been a considerable make of heavy castings for machinery, especially in connection with mining plant. The colliers in the district are now working well, and the London trade has been good, especially in small coal. Steam qualities have also been in steady demand, and a considerable tonnage has been sent to Hull. Not so much, however, has been forwarded to Grimsby during the last week or ten days. To Google something like an average tonnage has been forwarded, and during the week several cargoes have been taken to London and some other of the home ports, but not so much foreignwise.

#### TRADE IN SOUTH WALES.

Oct. 26.—Business in both steam and house coal is as active as dock accommodation will admit of at Cardiff, where 118,558 tons foreign and 18,504 tons coastwise have been shipped since last report; Newport, 32,048 tons foreign and 18,999 tons coastwise; Swansea, 15,897 tons foreign and 10,737 tons coastwise. The patent fuel trade is brisk, and 5365 tons have been sent away, while of coke 800 tons have been shipped. Prices vary from 8s. 6d. for inferior sorts to 12s. 6d. for best qualities, but very excellent colliery screened may be obtained at 11s. per ton. A new vein of coal was struck on Friday, the 20th inst., in the trial pit sunk by the Gwerna Colliery Company, upon the Gwerna land, and by last Monday morning the rock had been cleared off, and the seam of coal (the Mynyddiswyn house coal seam) had been got through. The seam proves about 3 ft. in thickness, and seemingly of good quality. There remains a large tract of land unworked from the trial pit to the mountain, so that if the seam takes its course there will be a large portion of coal to work. The finding of the coal at a depth of a little over 18 yards will enable the company to work it out by a drift lower down towards the Brecon and Merthyr Railway. Through the finding of the coal Monday was given up to festivity.

The Tredegar Steelworks are in active operation, but it is expected that the pressure of business will cause the company to increase their staff in a few days. The enginemen and stokers at the Landore Steelworks are agitating for a rise in wages, while the hammermen at the new works have not yet returned to business. The amount of iron sent away last week from Cardiff was 3153 tons, while from Newport the large quantity of 6074 tons were sent away. A plentiful supply of iron ore is coming in at Cardiff, no less than 17,250 tons having arrived from Bilbao, and 800 tons from other places; Newport, 10,670 tons from Bilbao, and 145 tons from other places.

The Tin-plate Trade is fairly healthy now, as prices tend upward, while the raw material is becoming cheaper. Coke-made stand at from 16s. 6d. to 16s. 9d. at Liverpool. Among the new inventions in this industry, Dr. Hermann Schulte, of Dusseldorf, Westphalia, has a patent for an improved process for recovering the tin contained in or upon waste metals, such as tin-plate waste, old utensils, cauldrons, tin ash, and like articles. In applying the patent to large pieces of alloys, however, it is necessary first to reduce these to granules, or a finely divided state, in order that the liquid employed for dissolving the tin may act with sufficient rapidity and energy. The liquid mentioned possesses, it must be noted, the property of dissolving the tin, and is obtained as follows:—A lye is prepared of any desired degree of concentration from hydrate of soda or potash and water. Preferably a lye containing 15 or 20 per cent. of hydrate of soda or potash is employed as giving very good results, but under circumstances a weaker or stronger lye may be used. The lye is heated to boiling point in a suitable vessel, with addition of a considerable excess of any oxide of lead, &c. By means of the lye thus prepared, the tin can be dissolved without attaching any other metal with which it may be mixed, or that may be coated therewith. The chemical process involved brings the solution of tin. The scrap metal or alloy to be treated is left in the solution until the whole of the tin is dissolved. The precipitated metallic lead is principally deposited in a spongy condition upon the metal, which has been deprived of its tin, so that it can easily be removed mechanically by scraping or washing. The lye having become saturated with tin, so its action ceases, there being no oxide of lead in solution therein, and the tin solution can be then treated in a manner known. The sufficient saturation of the liquid with tin is ascertained in the easiest way, by placing therein a piece of tin or tin-plate for from five to ten minutes, and then examining to see whether such piece has been attacked. The metals to be treated may, with advantage, be placed in perforated drums that are made to revolve slowly in the hot lye, in order that by the friction of the pieces against each other and against the sides of the drum the lead deposit may become removed, and thus clear surfaces be presented for the liquid to act upon so as to considerably increase the energy of action.

The negotiations between the Corporation of Cardiff and Lord Bute for the purpose of forming a harbour trust have fallen through, but his lordship is prepared to negotiate with a body of responsible gentlemen for the purchase of the Bute Docks, by which all parties interested may have a share in the undertaking.

#### TRADE OF THE TYNE AND WEAR.

Oct. 25.—The steam coal trade north of the Tyne continues good, and there is full employment for all the works. The coal trade all round on these rivers is active, and the shipments continue to increase, even as compared with the late very large amounts shipped. Gas and coking coals are in good demand, and prices are firmer with an upward tendency; although the works have been fully employed of late there has been no stocking at the pits. The usual council meeting of the Durham Miners' Union was held, on Saturday, at the Miners' Hall, Durham, Mr. John Foreman presided. The decisions of the Manchester Conference was brought before the meeting, and it was decided not to discuss the subject at all; but the report of the Durham delegates who attended the Conference was ordered to be printed and circulated amongst the members of the Association, and discussed at the various lodges throughout the county. It now appears to be probable that a serious stoppage of coalworks in the Midland counties will occur, and if so, there will no doubt be an increased demand for the coal produced in this district. The coalmasters and miners here will, we believe, use every exertion to meet any increased demand. The proposed alteration in the Northumberland sliding-scale has been a good deal discussed, and the remark of Mr. Burt, at Broomhall, a week ago, that an advance of wages should be given to the men, has also provoked much comment. The masters and agents state that it is quite impossible to give any general advance at present, as many of the large works are not yet in a position to earn any profits of consequence, and they also state that the average earnings of the men at many large works at present amount to 5s. 4d. per day. No doubt Mr. Burt and the miners will have something to say on these points shortly. The difficulty in the coal trade in Cumberland has been settled; the employers and miners have renewed the sliding-scale which expired some time ago. The basis of the scale has been changed, and the men have received an advance of 5 per cent. under the new scale.

The iron trade has been rather quiet this week so far as fresh business is concerned, but the real position of the trade is certainly firm and prosperous. The makers with few exceptions are sold up to the end of the year, and with the limited stocks many of them hold they have very little iron to dispose of. Shipments of pig-iron and steel, &c., continue large. There is also a good delivery for inland markets; but complaints are still made of the heavy railway dues, which, it is alleged, cripples this trade to a considerable extent. This subject was brought up last week at the Middlesbrough Chamber of Commerce in connection with new railway projects to shorten the distance between South Durham and Cleveland to Lancashire and Liverpool. There are two, if not three, rival schemes in the field with this object. For some time it was hoped by the mercantile community that the Midland Railway Company would take the matter up and project the required line which would connect Manchester and Liverpool directly with Middlesbrough, Stockton, and Darlington, and terminate at Sunderland. The Midland, however, appear to ignore the scheme, no doubt on account of the fear of a severe conflict in Parliament with their great rival, the North-Eastern Company; and if two schemes continue to be promoted, as at present, the question will be much confused, and much unnecessary expense incurred. At all events, the North-Eastern Company will doubtless oppose all the schemes, and they will endeavour to show that they are providing at present fully for the traffic of the district, or will eventually do so. It would, therefore, be well if the new rival schemes could be merged in one scheme; the field would then be cleared, and only the opposition of the North-Eastern would have to be met by the promoters of a direct line between Sunderland and the places named. The people of Sunderland are, of course, very anxious for the formation of such a line, as it would place that rising and important port in a very superior position to the one it now holds. On Saturday there was a meeting of the members of the lately-formed Blyth Harbour Commission, Sir Matthew White Ridley presiding. Plans for the extension of the piers at the mouth of the river were submitted, and also plans for a large dredging plant were submitted. There was an excited discussion respecting the large advance made in the harbour dues. Blyth is admirably situated for the shipment of Northumberland steam coals, and it owes its rise into a port of some importance to the existence of the splendid coal seam in the vicinity. In the beginning of the 17th century only a very small hamlet existed here. In 1723 nearly 80 vessels cleared from this port with coals for foreign parts, and after this period the building of wooden ships was commenced, and the trade was successfully carried on for a long period. In 1854 a Harbour and Dock Company was formed, and considerable improvements were effected in the harbour by the company, but very important improvements are still required in order to allow accommodation for steamers of the largest size. It remains to be seen whether the new Commissioners will carry out the necessary works with spirit. The wrangling at the meeting on Saturday respecting the late increase in the harbour dues is not a very favourable augury. Funds are required for the necessary works, and until the commerce of the port is largely increased an increase in the dues cannot be avoided. Iron shipbuilding was lately commenced here, and considerable progress has been made with this important business; several good vessels have already been launched.

At Middlesbrough, on Tuesday, the iron market was quiet, but sellers would not relax in the least in their quotations. No. 3 is 44s. 9d. to 45s. per ton. Messrs. Connal's stock of warrants is now 103,896 tons, a decrease of 722 tons on the week. Shipments of pig-iron are well kept up; during the past month 75,000 tons have been delivered. The manufactured iron trade is in a fairly active condition. There is work in hand for the winter. Ship-plates are 6l. 15s. bars 6l. Coal and coke firm, with an upward tendency.

The Board of Arbitrators for the manufactured iron trade held a

meeting on Monday at Darlington—Mr. Whitwell in the chair. There was a good attendance. The men still adhere to a claim of an advance of 7 per cent., and the masters demand a reduction of 7 per cent. The general feeling of the meeting was that the matter be referred to arbitration, subject to the figures of Mr. Waterhouse, the accountant, whose returns respecting the sale prices of iron have been published. After some discussion it was ultimately decided by the meeting that the whole question shall be referred to arbitration, and that Sir J. W. Pease be asked to act as arbitrator.

The lead trade is steady and improving; the exports of manufactured especially are increasing—that is, a growing demand for lead for building purposes—and it is hoped that better prices will be realised shortly for this important mineral. The price of lead here in 1875 was 22s. Since that time it has fallen constantly, and at present it scarcely reaches 15s. per ton. In Teesdale a reduction of the royalty dues are expected to be granted by the lessor, the Duke of Cleveland. At present the books of the London Lead Company are being examined by accountants, and the lessor will get a statement of the receipts and expenditure of this company for the last 30 years. It is well known that during the past few years a very large expenditure of capital has been incurred by the London Lead Company in barren and futile explorations; lately, however, a very rich vein has been struck by the company at the Ashgill Head Mine. Other mines are also carried on in Teesdale, and earning profits, notably that at Green Hurth, which is rich in silver. The first annual meeting of the Healeyfield Lead Mining Company was held in Newcastle on Monday. The company was formed a few months ago with a capital of 30,000l. to work those mines, which are situated in the southern hills of the Upper Derwent river. The company has a run of three miles in length from north to south, and the lodes are in the same formation as those so long worked in Weardale. Most favourable reports have been made on the sett by Mr. Bewick, the consulting engineer, and also by practical miners, and good results are confidently expected from the company's operations.

#### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Oct. 26.—It is still uncertain whether we are to have a strike of the colliers or not. The masters seem willing to grant 10 per cent. of the 15 per cent. asked for by the men; but whether the latter will accept this advance remains to be seen. I presume it depends very much upon the temper and tactics of their advisers. Mr. Robinson, one of the largest slate quarry owners in Nantlle, has been fined a nominal amount by the Carnarvonshire magistrates for not acquainting the Inspector of Factories of a fatal accident that occurred in one of his quarries. The discussion before the magistrates turned upon the question whether the quarries—which are open ones—came within the scope of the Factories Act. It was decided they did. It was stated in the course of the enquiry that over 20 fatal accidents had occurred in these quarries during the last three or four years. The proposed ship canal to Manchester is causing some excitement in the district, and a scheme, which may be intended as a rival scheme, but which may well be a supplementary one, has been started of making plate railways to be worked by horses, connecting the different manufacturing towns and principal manufactories of Lancashire. No doubt the ship canal will meet with much opposition, but if the Manchester people make up their minds for it they will have it.

Among the great works of the near future will be that of conducting the waters of an important Welsh valley to the Metropolis; ten or a dozen engineers have been busy at work for some months past making the preliminary surveys, and probably before long we shall have the scheme placed in a tangible form. At the great works for Liverpool in the valley of the Vyrnwy the building of the great dam across the valley began this week, the necessary excavations down to and into the solid rock having been completed. The great industries of the district—slate, coal, iron, lime, brick, sanitary ware, silk and building stone quarries, are, with the exception of the impending strike in the coal trade, in a satisfactory condition. As to lead mines, they all suffer from the price of lead. Still it is satisfactory to hear of many of them, of which Great Holway is a notable example, turning out good quantities of ore. What has become of the Llanarmon district, and of our friend "Enquire?" We miss his lively letters. It is definitely arranged that the works of the Oswestry and Llangynog Railway are to be commenced next April. This line will open up to the country an important mineral district.

#### FOREIGN MINING AND METALLURGY.

The forgemasters of the Nord (France) have maintained quotations with firmness, but at Paris business has been done at relatively low prices. Merchants' iron has been quoted at 71. 16s. per ton at Paris. Under all the circumstances it appears probable that, notwithstanding the abundance of orders, forgemasters will not be able to advance their prices. The Eastern of France Railway Company has let a contract for 3000 forged-iron axles for carriages or trucks to MM. Dietrich, at the rate of 217. 4s. per ton, delivered at Oricourt. The same railway company has also given an order to Messrs. Vickers, Sons, and Co. for 165 tons of steel tyres, at 237. 6s. 9d. per ton, delivered at La Villette. The production of coal in France in the first half of this year amounted to 9,942,371 tons, as compared with 9,391,233 tons in the corresponding period of 1881, showing an increase of 551,138 tons this year, or as nearly as possible 5 per cent. The production of pig in France, as well as casting and refining, in the first half of this year amounted to 1,010,795 tons, as compared with 963,119 tons in the corresponding period of 1881, showing an increase of 47,676 tons this year. The production of iron in France in the first half of this year is returned at 539,201 tons, as compared with 519,234 tons in the corresponding period of 1881, showing an increase of 19,970 tons this year. The total of 539,201 tons, representing the production of iron in France in the first half of this year was made up as follows:—Rails, 15,183 tons; merchants' iron and special iron, 438,995 tons; and plates, 85,026 tons. The production of steel in France in the first half of this year is returned at 223,156 tons, as compared with 207,878 tons in the corresponding period of 1881, showing an increase of 15,278 tons this year. The total of 223,156 tons, representing the production of steel in the first half of this year was made up as follows:—Rails, 161,678 tons; merchants' steel, 51,624 tons; and plates, 10,155 tons. There is little change to report in the general aspect of the German iron trade; although pig and iron continue in good demand, prices are so high already that no further advance appears likely to take place—at any rate, for the present.

Firmness continues to be the prevailing characteristics of the Belgian iron trade. Orders are still numerous, and are sufficient to impart a good tone to business, although any marked advance is not possible at present. Producers of raw material are well employed; but, on the other hand, the proprietors of some of the construction workshops and boiler works complain that they have scarcely any orders. This remark especially applies to the construction workshops which devote themselves almost entirely to railway plant. The latter works are, accordingly, strongly opposed to any advance on the part of forgemasters, but the forgemasters, supported by the upward tendency in coal, appear likely to carry everything before them for the present. In order, however, to arrive at a durable result, it is clear that work must become more abundant than it is at present, not merely for certain special categories; but in a general manner, so as to embrace all descriptions of industries. English pig has scarcely varied, 27. 12s. being still the average rate at which transactions have been concluded in Belgium. Belgian pig has been extremely well maintained. Casting has made 37. per ton, while 27. 12s. has been asked for refining. Stocks for the rest have almost disappeared, and their absence justifies the attitude assumed by makers. Iron has been in good demand in Belgium. Almost all the great works are frankly adopting a quotation of 57. 12s. per ton for No. 1. In the Liège basin this rate may be regarded as a basis price, while at Charleroi, where the number of small transactions is relatively considerable, the average rate is still 57. 8s. per ton, although in the Charleroi district, also, some well employed works are standing out for 57. 12s. per ton. Gliders have been quoted at 57. 16s. to 67. per

ton, while plates have been firm at 77. 12s. for No. 2, and 87. 8s. for No. 3.

The Belgian coal trade continues to be characterised by much firmness, orders coming to hand freely at the principal collieries. A strike has occurred in the Hainaut, but it is not anticipated that a general complication will ensue. At the same time, the production may be reduced to some extent and some advance in wages may ensue. Past experience has proved that production is proportionately less when wages are high than when they are low. Coal in the Hainaut exhibits under all these circumstances an upward tendency, which has not been checked by the termination of another strike which recently occurred in the Couchant de Mons. In the Liège basin stocks are almost nil, and many pits find it difficult to meet the demand. Some of the managers complain, indeed, that they have to refuse orders. Upon the whole, the Belgian coal situation may be pronounced excellent, and should the weather become colder we shall probably witness a considerable rise in domestic qualities. There is no change to report in the general condition of the German coal trade. The demand is considerable, and the production is absorbed without difficulty; no change is, however, likely to occur in prices until the winter sets in, although the general tendency of the market is one of much firmness.

#### PROVINCIAL STOCK AND SHARE MARKETS.

CORNISH MINE SHARE MARKET.—Mr. S. J. DAVEY, mine shareholder, Redruth (Oct. 26), writes:—Since last week we have had a very quiet market with lower prices for several mines. Carn Brea advanced to 103, but is easier again. At the meeting to-day a loss of 2556l. was shown. Killfrettha is in better demand to-day. Other mines dull. Subjoined are the closing prices:—Blue Hills, 1 to 1½; Carn Brea, 9½ to 10½; Cook's Kitchen, 40 to 41; Dolcoath, 75 to 76; East Blue Hills, 10s. to 12s. 6d.; East Lovell, 1 to 1½; East Pool, 52½ to 53; Killfrettha, 5½ to 6½; Mellanear, 4½ to 5; New Cook's Kitchen, 6½ to 7; New Kitty, 2½ to 3; North Basset, 3½ to 4; Penrhall, 10 to 11; Penrhall-drea, 3 to 3½; Phoenix, 3 to 3½; South Condurow, 9½ to 10; South Crofty, 12½ to 13; South Tincroft, 12½ to 13; South West, 11½ to 12; Tincroft, 11½ to 12½; West Basset, 7½ to 8½; West Kitty, 12½ to 14½; West Peever, 12½ to 14½; West Polgreen, 3½ to 4½; West Poldice, 3½ to 4½; West Tolgus, 17 to 19; West Seton, 22 to 23; Wheel Agor, 17½ to 18; Wheel Basset, 10 to 10½; Wheel Condurow, 1½ to 1¾; Wheel Grenville, 9½ to 10; Wheel Jane, 3 to 4; Wheel Kitty, 2 to 2½; Wheel Peever, 3½ to 4; Wheel Prussia, 3½ to 4; Wheel Uny, 4½ to 5½; East Uny, 15s. to 17s. 6d.; Mount Carbis, 2½ to 3½.

—Messrs. ABBOTT and WICKETT, stock and share brokers, Redruth (Oct. 26), write:—The transactions in Cornish mine shares during the week have not been numerous, and quotations are generally lower. Subjoined are the closing quotations:—Blue Hills, 1 to 1½; Carn Brea, 10 to 10½; Cook's Kitchen, 41½ to 42½; Dolcoath, 75½ to 76½; East Pool, 52½ to 53; Killfrettha, 5½ to 6½; Penrhall, 10 to 11; Penrhall-drea, 3 to 3½; New Cook's Kitchen, 6½ to 7; New Kitty, 2½ to 3; North Basset, 3½ to 4; Penrhall, 10 to 11; Penrhall-drea, 3 to 3½; Phoenix, 3 to 3½; South Condurow, 9½ to 10; South Crofty, 12½ to 13; South Tincroft, 12½ to 13; South West, 11½ to 12; Tincroft, 11½ to 12½; West Basset, 7½ to 8½; West Kitty, 12½ to 14½; West Peever, 12½ to 14½; West Polgreen, 3½ to 4½; West Poldice, 3½ to 4½; West Tolgus, 17 to 19; West Seton, 22 to 23; Wheel Agor, 17½ to 18; Wheel Basset, 10 to 10½; Wheel Condurow, 1½ to 1¾; Wheel Grenville, 9½ to 10; Wheel Jane, 3 to 4; Wheel Kitty, 2 to 2½; Wheel Peever, 3½ to 4; Wheel Prussia, 3½ to 4; Wheel Uny, 4½ to 5½; East Uny, 15s. to 17s. 6d.; Mount Carbis, 2½ to 3½.

—Mr. M. W. BAWDEN, Liskeard (Oct. 26), writes:—The mining market shows a further depression on most tin stock. The unaccountable reduction on the tin standard has created a want of confidence, and buyers only to be met with at lower rates. South Croft and Devon Consols are the only shares which have advanced on the sale of the mine to the new company. To-day business is mostly confined to the settlement. Subjoined are the closing quotations:—Bedford United, 210 to 215; Carn Brea, 10 to 10½; Cook's Kitchen, 41½ to 42; Dolcoath, 75½ to 76; Devon Consols, 6½ to 6¾; East Croft, 1 to 1½; East Lovell, 1 to 1½; East Pool, 52½ to 53; Glasgow Caradon, 1 to 1½; Gunnislake (Clitters), 3½ to 4; Herodfoot, 3½ to 4; Hingston Down, 3½ to 4; Killfrettha, 5½ to 6½; Marke Valley, 3½ to 4; Mellanear, 4½ to 5; New West Croft, 3½ to 4; North Herodfoot, 3½ to 4; Old Gunnislake, 3½ to 4; Phoenix United, 3½ to 4; Prince of Wales, 3½ to 4; South Croft, 12½ to 13; South Condurow, 9½ to 10; South Crofty, 12½ to 13; South Tincroft, 12½ to 13; South West, 11½ to 12; Tincroft, 11½ to 12½; West Basset, 7½ to 8½; West Kitty, 12½ to 14½; West Peever, 12½ to 14½; West Polgreen, 3½ to 4½; West Poldice, 3½ to 4½; West Tolgus, 17 to 19; West Seton, 22 to 23; Wheel Agor, 17½ to 18; Wheel Basset, 10 to 10½; Wheel Condurow, 1½ to 1¾; Wheel Grenville, 9½ to 10; Wheel Jane, 3 to 4; Wheel Kitty, 2 to 2½; Wheel Peever, 3½ to 4; Wheel Prussia, 3½ to 4; Wheel Uny, 4½ to 5½; East Uny, 15s. to 17s. 6d.; Mount Carbis, 2½ to 3½.

—Mr. JOHN CARTER, mine shareholder, Camborne (Oct. 26), writes:—The market has been very dull during the past week and business has been limited to a few transactions in some of our leading mines. The drop in tin has had a tendency to weaken prices, and most shares have declined. At Carn Brea meeting to-day a loss of about 3000l. was shown on the 16 weeks' working, which, together with the loss shown at the last account will make a balance of 5600l. against the mine. Closing quotations are annexed:—Carn Brea, 9½ to 10½; Cook's Kitchen, 40 to 41; Dolcoath, 75½ to 76; East Pool, 52½ to 53; Killfrettha, 5½ to 6½; Penrhall, 10 to 11; Penrhall-drea, 3 to 3½; New Cook's Kitchen, 6½ to 7; New Kitty, 2½ to 3; North Basset, 3½ to 4; Penrhall, 10 to 11; Penrhall-drea, 3 to 3½; Phoenix, 3 to 3½; South Condurow, 9½ to 10; South Crofty, 12½ to 13; South Tincroft, 12½ to 13; South West, 11½ to 12; Tincroft, 11½ to 12½; West Basset, 7½ to 8½; West Kitty, 12½ to 14½; West Peever, 12½ to 14½; West Polgreen, 3½ to 4½; West Poldice, 3½ to 4½; West Tolgus, 17 to 19; West Seton, 22 to 23; Wheel Agor, 17½ to 18; Wheel Basset, 10 to 10½; Wheel Condurow, 1½ to 1¾; Wheel Grenville, 9½ to 10; Wheel Jane, 3 to 4; Wheel Kitty, 2 to 2½; Wheel Peever, 3½ to 4; Wheel Prussia, 3½ to 4; Wheel Uny, 4½ to 5½; East Uny, 15s. to 17s. 6d.; Mount Carbis, 2½ to 3½.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, share brokers, Queen's Chambers, Market-street (Oct. 26), write:—Notwithstanding the approach of the fortnightly settlement now in progress a moderate amount of business has been concluded during the past week, the continued ease in money inducing operations in the foremost speculative securities. The best points in most cases, however, are not maintained, some relapse having occurred to-day. Egyptians have had a quiet market, and prices of United are ½ to ¾ down on the week. In the miscellaneous markets a fair amount of dealings are reported, but values show a majority of adverse movements excepting in banks and in iron, coal, &c., shares. The aggregate of the transactions in these shares is greater than has been the case for several late weeks, but with exceptions just named a dull tone prevails.

BANKS rule firm, there being no instance in which lower rates are quoted, whilst Bank Note of Manchester have improved ½ to ¾ on last week's figures, and Manchester and County have strengthened ½ on sellers' quotations. Several odd lots of Manchester and Liverpool Districts have changed hands at full figures, and to-day a transaction has been marked at 37½.

INSURANCE.—The approach to general steadiness which we have had to notice once or twice lately has been superseded by another all-round depreciation. Only in one instance is there any leaning towards better sales—British and Foreign Marine—the buyers' figure for which is marked ½ up. Queens have quoted ½ up, but have settled back to previous last report, and the following are all lower:—Commercial Union, ½; Liverpool and London and Globe, ½; Royal (Liverpool), ½; Sea, ½; Manchester Fire, ½; Equitable Fire, ½; Maritime, ½. In Lancashire and Yorkshire Accident sellers are down ½.

COAL, IRON, & C.—Though not again generally better, this market keeps fairly steady, as with a fair number of revised quotations the balance is favourable to the seller, if not much so numerically. Business done is well distributed amongst the concerns usually done here, but Bolewicks and Ebbw have moved to their credit. Ebbw show a small advance, but Bolewicks have moved irregularly, fully paid being stronger ½, but only on buyers' rate (10s. paid) ½ better, and 12d. paid turn down. Ashbury's Railway Carriage and Iron have made a spring, now quoting 5 to 7 higher. Tredegar, A. and Telegraph Construction and Maintenance mark distinctly higher, but Tredegar, B. is unchanged. Amongst the adverse changes, Earle's Shipbuilding, Tharsis Sulphur and Copper, and Sheepbridge Coal, &c., stand foremost. In full the following are the alterations:—Highgate, ½; Ashbury's, 5 to 7; Tredegar, 10 to 12; United States Rolling Stock, ½; Bolewicks (10s. paid), ½; Bilbao Iron Ore, ½; Ebbw Vales, ½; Lower Earle's Shipbuilding, 1; Tharsis Sulphur, &c., 1; Sheepbridge Coal, &c., ½; Bolewicks (12d. paid), ½; Indian Phenix Gold, ½; and Canadian Copper and Sulphur, 6d. to 1s. Indian Glenrock and Indian Trevelyan have marked a fall of ½, but have recovered, and now quote same as last week. Pelsall Coal and Iron are stronger.

COTTON SPINNING, &c., shares, though business offers at very close margins, little is concluded, owing to firmness on both sides. For the popular companies full rates have to be given to tempt sellers, but for other than these little attention is given.

TELEGRAPH lower, and not much business passing. An exception as regards prices is found in Western and Brazilian; they exhibit a rise of ½ to ¾, whilst Anglo preferred are down 1½; ditto ordinary, ¾. Directs, &c., and Easterns, ½. TELEPHONES slow, and turn easier where altered. Lancashire and Cheshires 6½, and Oriental ½ down; the latter, however, only on buyers' figure, sellers remaining without change.—COMPANIES STOCKS, &c., are firm, but, save a rally of ½ in Manchester stock, figures show no change. IN CANALS a few dealings are marked in Bridgewater (of both issues), and in Rochdale, and a decline of ½ to ¾ in Bridgewater ordinary is the only change in prices.—MISCELLANEOUS present a few features worth notice—a rise of 1 to 2 on Gas Light and Coal ordinary, and a fall of 2½ in Anglo-American Brush Electric Lights, 4½. Hudson's Bay have had a few lots changing hands, but prices show no material change on the week.

RAILWAYS.—A variety of fluctuations have occurred during the past week and prices are irregular. The cheapness of money has caused a demand for the heavy lines, and as some of their traffics show very well their values have improved in consequence. To-day, however, there has been a falling off, good prices of yesterday are lost, and the balance is in favour of the buyer. Brighton A's have fluctuated violently since yesterday, their monthly statement showing a disastrous condition in their working, the return exhibiting a decrease of 454½, yet an increase of expenses of 2157l. This induced heavy selling, and a considerable fall is the result. Canadians are not materially altered, although the traffic is evidently strong in their favour as evinced by the heavy contango rates paid yesterday. It may be noted, however, that names into which stock is going may mean another syndicate for rise. Americans uncertain, all descriptions flat, the traffics lately reported being unfavourable and against rise, but the splendid harvest in that country must tell ere long.

#### SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, sharebroker and ironbroker, (Oct. 26), writes:—During the past week the market has been quiet, owing to the dullness of the metal market, but a recovery may be expected, owing to the encouraging prospects of trade. The fortnightly settlement is now in progress, and transactions entered into are for next account (Nov. 15), which is therefore rather a long one.

In shares of coal, iron, and steel companies prices are generally better. In the Scotch pig-iron market the price of warrants declined to 52s. 4d., but has since recovered to 51s. 2d., and the opportunity should be a good one for purchasers, seeing that the home trade is good, and prospects encouraging. The additional cost of coals and dearer wages are also likely to improve prices. Alltair Debitures are at 7½; Chillington Iron, 62s. 6d.; Llylvi and Tondur, 9 to 9½; ditto (Preference), 75s. to 85s. Marbella declined from 64. 8d. to 62. 2s. 6d. on unfavourable rumours regarding the leases, but are now better, about 6½.

In shares of foreign copper and lead companies the principal feature is a decline in Mason and Barry, Rio Tinto, and Tharsis in sympathy with the decline in the copper market. Tharsis declined from 42 to 42½. The Huntington Company has called up the remaining 5s. on their shares, making 10s. each fully paid. Multifalls are at 7s. 6d. to 10s.; Huntington, 15s. to 17s. 6d.; Hungarian, 5s. to 10s.; Mason and Barry, 17; Norway Copper, 7s. 6d. to 10s., also 10s. to 12s. 6d.; Santa Cruz, 1s. 3d. to 3s. 9d.; and Souback and Catir Alan, 15s. to 17s. 6d.

In shares of home mines prices are steady. The last sale of Glasgow Caradon was 170 tons of copper ore, and realised 880l. 15s., or an average of 57. 15s. 4d. per ton. The previous sale in August of 160 tons averaged 57. 7s. 4d., and in October last year there was no sale, but in November 110 tons only realised 32s. 6d., and the price from 61s. 9d. to 113s. 9d. per ton. As compared with last year, this company has now sold 30 tons more ore, but the money realised (3876l.) shows an increase of no less than 1225l. St. Just United and Tamara offered. Anderton Tin, 20s. to 25s.; Bodidris, 1s. to 3s.; Carn Camborne, 10s. to 20s.; Caron, 2s.; East Wheel Lovell, 20s. to 25s.; East Wheel Rose, 19s. to 20s.; East Devon Consols, 25s. to 30s.; Gorsead and Merilyn, 20s. to 30s.; Grogwinion, 15s. to 25s.; Grogwinion, 20s. to 25s.; Indian Queens, 5s. to 10s.; Kib Hills, 7s. 6d. to 12s. 6d.; Langford, 7s. 6d. to 10s.; Lomax, 10s. to 20s.; Mounts Bay, 7s. 6d. to 10s.; Herodfoot, 2s. 6d. to 5s.; Old Gunnislake, 4s. to 6s.; Parkas, 5s. to 7s. 6d.; Phoenix United, 6s. to 10s.; Penarth, 4s. to 5s.; Pioneer, 5s. to 7s. 6d.; Prince of Wales, 5s. to 11s.; Pen-y-Ore, 5s. to 10s.; Rhosmorris, 5s. to 6s.; South Croft, 2s. 6d. to 5s.; South D'Esreshy, 2s. 6d. to 5s.; Sorridge, 6s. to 8s.; Tresavean, 20s. to 22s. 6d.; Tin Hill, 7s. 6d. to 12s. 6d.; Ystwith, 2s. 6d. to 5s.; West Caradon, 27s. 6d. to 32s. 6d.; West Croft, 9s. to 11s.; Wheel George, 20s. to 25s.; Wheel Kitty, 38s. 9d. to 41s. 3d.; and Wheel Funtal, 10s.

In shares of gold and silver mines there has been little business doing. Akankoo are at 10s. to 12s. 6d.; Cedar Creek, 1s. 3d. to 3s. 9d.; California Gold, par; Colorado United, 35s. to 37s. 6d.; Colombian Hydraulic, 5s. to 7s. 6d.; Chile Gold, 15s. 9d. to 21s. 3d.; Colar Gold, 1s. 3d. to 3s. 9d.; Eureka, Nevada, 5s. to 7s. 6d.; Don Pedro, 3s. to 5s.; Gold of Canada, 10s. to 15s.; Gold Hills, 5s. to 10s.; par; Indian Consolidated, 10s. to 12s. 6d.; Indian Kingston, 3s. to 5s.; Kapangas, 14s. to 16s.; Kolindor, 25s. to 27s. 6d.; New Gold Run, 3s. 6d. to 5s.; ditto (Pref.), 4s. 6d.; La Plata, 40s. to 42s. 6d.; Mysore, 9s. to 11s.; New Callao, 5s. to 10s.; Nine Reels, 5s. to 7s. 6d.; Organo, 40s. to 50s. (been 70s.); Port Phillip, 2s. to 4s.; Pestarena United, 2s. 6d. to 3s. 9d.; and Silver Peak, 2s. to 4s.

In shares of oil and miscellaneous companies the movements are evenly divided, but business has been quiet. Lower Chemical, 6½ to 6¾; Langdale Chemical, 72s. 6d. to 77s. 6d.; Midlothian Oil shares, 6½ to 7; and Nobel's Explosives, 31s. to 32.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street (Oct. 25), write:—There is not much change to note in the railway market. The principal alteration is a further decline in Brighton Deferred Stock, which has receded from 121½ to 118½. Great North of Scotland has receded from 62½ to 61. The last price to-day of allotment letters of Caledonian New Ordinary stock was 6½ per cent. premium. Grand Trunk of Canada stocks were for a time very weak, but have hardened again, though they still show a decline. The Ordinary has receded from 29½ to 28½; the Third Preference from 62½ to 61½. Great Western of Canada shares from 16½ to 16. Americans are weaker, with the exception of New York, Pennsylvania, and Ohio descriptions, which have been firm on good traffic returns. The business done in marketable lots of Bank stock has all been at previous quotations, with the exception of that in Union, which have improved from 24½ cum to 24½ ex dividend. In insurance shares North British and Mercantile are 2s. 6d. lower at 21½; Caledonian are 20s. higher at 75; Scottish Metropolitan Life 2s. lower at 25s.; Scottish Union and National A are 2s. lower at 68s. The shares of Colonial and American investment and land companies have shown weakness. Scottish American Investment have declined from 83s. to 82s.; Mortgage of South Australia from 13s. 9d. to 13s.; Australasian Mortgage and Agency from 60s. to 59s. 6d.; Hudson's Bay, from 39½ to 39s.; New Zealand and Australian Land have risen from 64½ to 65; the Preference Stock from 31 to 34; Scottish, Ontario, and Manitoba, 1st issue, from 57 13s. to 67. 2s. 6d.; Clyde Coal shares have risen from 65s. to 66s. Huntington Copper have declined from 15s. 3d., with 9½ paid up, to 16s., with the whole 10s. paid up; Marbella Iron Ore have declined from 6½ to 6¾. Dalmeny Oil have improved from 24 to 25.

#### IRISH MINING AND MISCELLANEOUS COMPANIES SHARE MARKET.

CORK.—Messrs. J. H. CARROLL and SONS, stock and share brokers, South Mall (Oct. 25) write:—Markets were dull and inactive. Great Southern fell to 116, and Limericks were done at 26. Midlands were, however, steady at 89, and Bandon was asked for at 89. National Banks were done at 24½, and Hibernians at 33½. Munsters also changed hands at 6½. No change in Provincials. Cork Steam Packets unchanged. Lyons shares were offered at 5½, and Breweries at 5½. Gresham Hotels remain 3½ to 3½, and Harbour Board debentures, sellers at 102½.

#### Meetings of Public Companies.

##### LAST CHANCE CONSOLIDATED SILVER MINING COMPANY.

The general meeting of shareholders was held at the offices, Moor-gate-street Chambers, on Oct. 14.

Hon. A. G. PONSOMBY in the chair.

The SECRETARY read the notice convening the meeting, and the report of the directors and accounts to June 30 were submitted.

The CHAIRMAN, in moving the adoption of the report, said that they had the pleasure of having Mr. Bamberger present, who some little time since returned from the mines, and he (the Chairman) would, therefore, leave Mr. Bamberger to explain the situation of the property. The accounts were for 19 months—in fact, from September, 1880, to June, 1882. The shareholders could see exactly how the money had been expended, and it seemed to the board that the actual results, compared with the expenditure, were satisfactory. At the same time, looking to the expenditure that would still be required, the board said that the greatest economy must be observed, and had come to the decision not to accept any fees until the company was in a more satisfactory position. He had to modify one statement in the report, and that was in reference to the proposed tunnel which was intended to drain the Last Chance Mine, and provide the carriage hooper ore. The statement in question was made from information received by cable from Salt Lake, but by a letter received only that morning it appeared that the tunnel would be rather longer than had been anticipated, and would have to pass through ground belonging to other parties, and that the cost would exceed the sum of 87000 named. With regard to the prospects, he would remind the shareholders that on the Hooper Mine there had been developed over 15,000 tons of low grade ore, averaging 12 ozs. silver to the ton, and as soon as satisfactory arrangements were made that ore would be concentrated. After reading extracts from the agent's letter with reference to this subject, he concluded by formally moving the reception and adoption of the report and accounts.—Mr. S. J. DAVEY seconded, and the motion was carried.

Mr. BAMBERGER said that when he went out last year to the mines he was disappointed at the quality of the ore; but judging from the earlier history of the Last Chance Mine he felt confident that a large deposit of rich ore would be at some time discovered. The mines were being worked with as little expense as possible to the company. They had been working the Hooper and Last Chance on tribute, which meant that the working men take 70 and 75 per cent. respectively of the product of the first-class ore for their labour, and the company received the balance of 25 or 30 per cent., as the case might be, clear of all expenses. This was the safest way under the circumstances, for employing daily labour would not pay unless there was a clearly defined vein of rich ore, because the men would not take the trouble to save the ore when working for the company as they did when working for themselves. Under the tribute system the company takes the ore extracted and sells it, and then pays the men their proportion without incurring expense of running any risks, and the company's proportion provided for the expenses of the mine. It might be said, "You have spent much money and the ore sold has not produced nearly that sum," but he would answer that the mines were being developed, and there was the chance of finding a continuous vein of high grade ore, while at the same time the sale of the small quantities of ore taken out helped to meet the expenses. The operations carried on had developed at the same time large bodies of low grade ore, which would be dealt with later on. Anyone who was practically acquainted with mining would know that the necessary development took a considerable amount of money, and he thought the company had done very well in spending so little money considering the amount of work accomplished in running tunnels, drifts, and sinking winzes, &c. The main thing now to be done was to deal with the low grade ore. It had been proposed that the company should erect its own concentrating works, but this proposition would require consideration. It was estimated that there were in the Hooper Mine alone about 15,000 tons of low grade ore above the Hooper tunnel; this ore had lately been tried, and was reported upon very satisfactorily, and offers had been made to give to the company 25 per cent. of the proceeds for working this ore, and on his return to the mines he would advise the company as to the accepting of such a proposition. Should he feel later on justified in doing so he would recommend the company to build concentrating works, but he would not advise anything until he saw his way clearly. He would be very pleased to answer any questions, and there was one thing he would explain before any question was asked, and that was that the delay in reporting on

he tunnel was caused by the very severe weather, which prevented the engineers from surveying, for although work in the mines and tunnel could be carried on in winter, surveying could not.

Mr. PORTER said there was one point he would like to call attention to. The Chairman in his speech mentioned that the total cost of the tunnel would be considerably more than stated in the report, and that concentrating works would cost from \$7000 to \$8000. Would Mr. Bamberger tell the meeting as nearly as possible what would be the total cost?—Mr. Bamberger replied that it would be hard to tell the exact amount, but he believed the company had sufficient funds to do all that was necessary.

Mr. PORTER said that Mr. Bamberger had told the meeting that he was disappointed in the mines, and which he presumed had reference to the Hooper Mine only.—Mr. Bamberger said that was so. With regard to the Last Chance Mine, he could say nothing, as he had not seen the deep workings, they being under water, but Mr. Adley, whom he saw present, knew more about the Last Chance Mine than he did.

Mr. ADLEY said there was one point he would like to call attention to in reference to the tunnel. It seemed to him that the tunnel first proposed would strike the vein below the tunnel now proposed.—Mr. Bamberger explained that Mr. Adley was under a wrong impression. The tunnel now proposed would strike the Last Chance vein 130 ft. below the deepest workings—in fact, 340 ft. below the lowest tunnel.—Mr. ADLEY said he was glad to hear this, and on that statement he felt justified in recommending the running of the tunnel, as he knew there was a vein of ore in the bottom of the Last Chance Mine when he had charge of the mine. He had taken out 80 tons, which were sold at \$55 per ton, but the water had prevented working since.

Mr. Bamberger said he had heard the statement made by Mr. Adley, which confirmed what he had heard many times from men who had worked in the Last Chance Mine, and he now felt more than ever justified in recommending the pushing on with the tunnel.—Mr. PORTER said that when the Hooper Mine was bought it was on the understanding that it would enable the company to pursue the working of the Last Chance vein. Were they now to understand that the ore would not pay the expense of working it?—Mr. Bamberger said no.

Mr. PORTER asked how long the tunnel would take to construct?—Mr. Bamberger said that six months was the estimate they had got.—Mr. PORTER enquired whether the progress would be interfered with by the weather.—Mr. Bamberger stated that the necessary survey having been made, the work could be carried on without regard to the weather.—A SHAREHOLDER asked if Mr. Bamberger would kindly inform the meeting whether any mine in the neighbourhood was yielding rich ore.—Mr. Bamberger replied that there were several.

The Hon. A. Ponsonby and Mr. Heckerthorn were re-elected; and thanks having been voted to the Chairman, to the directors, and to Mr. Bamberger for the satisfactory explanation he had given, the proceedings terminated.

#### PIERREFITTE MINING COMPANY.

The ordinary general meeting of shareholders was held at St. Michael's Hall, George-yard, Lombard-street, on Friday, Oct. 20.

Alderman Sir THOMAS DAKIN in the chair.  
Mr. J. R. COOMBS (the secretary) read the notice convening the meeting, and the report and accounts were submitted.

The directors reported that the expenditure on capital account may now be considered as practically closed, with the exception of providing for the purchase and erection of the engine and its necessary gearing, and the building of a few sheds over part of the dressing-floors to protect the machines and workmen against the earlier and to enable them to be kept at work during the winter months. The outlay on new machinery and plant for the year has been 7974. 3s. 6d., which includes the completion of the wire ropeway, and all the necessary buildings of the establishment, save the sheds mentioned. Exclusive of the interest accrued, and to accrue up to Nov. 1 next, on the debenture capital, and to the drawing of 10 per cent. of that capital about to take place, the liabilities of the company, inclusive of the last instalment of the mortgage, of the cost of the application of steam-power to the machinery, of the amount due to Mr. Green, and of that to complete the dressing machinery, does not exceed 5000*l.*, and it is considered that the sum will be sufficient to close the expenditure on capital account. The directors regret that they have found it impossible to confine themselves within the limits of the amount authorised to be raised at the last meeting; but, on the other hand, they are confident that efficiency has been attained, and that the wealth of the mines fully justifies the large outlay that has been incurred. Of the issue of debentures then sanctioned, a balance of 700*l.* remains unallotted. The greater part of the interest on those issued is a liability as indicated in the accounts, and including the coupon due in Nov. next, amounts to 1555*l.*, which, coupled with the drawing of 10 per cent.—10,300*l.*—1930*l.*, makes a total of 3485*l.* to be provided to meet the obligations of the company under this head. The directors therefore propose to ask the shareholders to increase the debenture capital by the creation of a further 10,000*l.* of bonds, which will be secured by a second mortgage on the mines and properties of the company, and carry interest at the rate of 10 per cent. per annum. This amount will more than cover the total liabilities; but, to a certain extent, the new issue is not an increase of capital, seeing that nearly 2000*l.* of the existing debentures will be redeemed, and the balance of the mortgage will be paid off, which will greatly enhance the value of the debentures and security.

The mine has been inspected by Mr. Arthur Taylor, who, in concluding a long report, says: "I think the property to be one of very great value, and capable of returning very large and lasting profits. If the south lode turns out as well as it now promises, an immense amount of ore ground will be available from it. The north lode also will make very large returns, but the quality of the ore is inferior to that of the south lode as seen at present. The returning costs are very low in spite of the hardness of the ground; but, as I said before, the mines require much opening up to facilitate cheap working." The report ends with a recommendation to employ a dresser who thoroughly understands the class of ore to be treated; but before its receipt the directors, recognising the necessity of such a step, had engaged a man of great experience in that department, and who is also an excellent mechanic, having been till recently engaged as a constructor of dressing machinery.

The CHAIRMAN said—It is now, gentlemen, my duty to move the adoption of the report and accounts, which have been sent to you in very full detail, and I hope you have done us the honour and yourselves the credit of reading them carefully, for I consider this a very important crisis in the history of our company, and one that will deserve our best attention in dealing with the matters to-day. The report would have been delivered and the meeting held a month earlier—last year I think the meeting was held in the month of September and we were desirous of having it in the same month this year—but we were very desirous of having the report from the eminent mining engineers, Messrs. John Taylor and Sons, with whom we had arranged to send one of their body to give us a full report of the present condition of the mine, especially having regard to what we consider a very important discovery in the mine—that is, the south lode, which we hope will lead us up to very great prosperity, and we were anxious that you as well as we might have the latest intelligence as to the present position of the mine, and likewise the condition of the machinery, and the whole of the arrangements of the mine, and some idea of the probability of success such as they could give from a skillful and partial observation. Therefore, I think that is a very good reason why the report was not delivered till now. It is only our own report, but that which Messrs. John Taylor and Sons have favoured us with for your careful perusal. The London firm have added their endorsement to Mr. Arthur Taylor's report, which I consider of great importance. Messrs. Taylor will observe, in their introductory notice to this report give unqualified approval of the report of Mr. A. Taylor, and with regard to the South Mine, which of course we are very anxious about—the North Mine we know pretty well the condition of, having worked it so long, although for circumstances I shall hereafter explain, have not worked it to such an extent before—they say—"The South Mine has now acquired great additional value by the discovery of a deposit of ore very much richer in silver than those hitherto found in the Pierrefitte Mines," and they entirely concur with Mr. A. Taylor in his general report. The quality of the south lode is a matter of very great importance. I see here a very great friend who has given a great deal of attention to this particular matter, Mr. Bullivant, who I had hoped to see on this side of the table. He has visited the mine, and has taken the means of giving the same kind of information that we have in the report from Mr. A. Taylor. He says—"The stone, a very fine grained galena, resembling cast-steel, taken from this point gives by analysis 111 oz. of silver per ton." I think a larger amount than this has been obtained from this south lode. This is, of course, a particular specimen. The working of the south lode as far as it has gone gives a very unusual proportion of silver to the ton in the lode. He likewise says—"The south lode should be at once opened up." We have taken means to put additional miners to that work. We are pushing that forward, and we hope that before very long we shall have a very large supply from that lode. He goes on to make a remark which I am glad to see, that the cable upon which we have spent upwards of 2000*l.* is in capital order, and doing its work admirably. He says—"It will take down from 50 to 100 tons per day—I believe it will do more than that." That is a very satisfactory remark, coming on Sept. 1 from him. The two solid securities we have with regard to the enterprise is the condition and quality of the mine, and the means of bringing the ore down to the dressing-floors. In those there has been no mistake, and we have been eminently successful. The question of treatment is another matter, and that has been somewhat disappointing. He then makes a remark with regard to the machinery generally, of which he gives a very good account, and it is very satisfactory to us that he endorses the efficiency of the machinery and the mode in which it is distributed for use. We could not work the North Mine because of the absence of water, but there is now an abundance of water, and the work there is going on. The peculiarity of the south mine is that it is so rich, and that the rich portions are so capable of being selected and hand-picked, and it is by that means that we have got the large returns of the last two months. We can hand-pick it and send it to market much better than if we dressed it. We have appointed a first-rate dresser from South Wales, well acquainted with the structure of machinery and its use, and he is now giving his best attention to carrying that into operation. The dressing-machinery and its use is now in a very satisfactory condition. The next matter is with regard to our balance-sheet. I have stated the bright parts of our case; but it is intermixed with something not so satisfactory—that is, as regards the past. I always think it wise to recognise past failures, if I may so call it, because unless we do so we are not prompt or able to make up the deficiency by improvements. With regard to our last balance-sheet not being productive, the cause of the failure was that there was a mistake with regard to the mode of treating our ore. We had an impression, confirmed by some experience, that instead of having to dress our ore of the north lode we should have the means of crushing them and preparing them, and sending them to the market in Swansea or elsewhere, where there are means of treating this complex ore, so as to give us a large return by that means; but when we came to put that into practice we found that we could sell the ore only at such an inconsiderable price that it was not worth our while to work our valuable mines and send it in that shape without trying to dress it. It was found to be absolutely necessary to dress our ore. Then some dressing machinery was put up by our late Captain—Capt. Richard—who we presumed was well acquainted with his business; but when the dressing

machinery was put up it was very deficient in its working, and its proceeds were very unsatisfactory. The other disappointment was that instead of having the supply of water we had every reason to expect, judging from our enquiries with regard to the past history of that part of the Pyrenees, and from the probability that we should have an abundance of water from the ravine which came into our property, there was only a small quantity of rain and a great drought followed; so that when we were ready otherwise we had not the water to drive our machinery. These have been our two very great disappointments. We have remedied them by erecting complete dressing apparatus, which has now been partially at work for six weeks or two months, and which has been a complete success. The whole of the apparatus is now ready, and we have every reason to believe that when the north mine and south mine are in full work we shall be able to dress possibly 300 or 400 tons a week, and be able to show a very large return. With regard to the water we have lately had a good supply, and the machinery has been for some three weeks in full working order; but we have learned a severe lesson, and we deemed it absolutely necessary to take some means of obtaining a constant supply of water. We sent a skilled gentleman over to see if we could not, by means of dams, secure a good supply of water; but on further consideration, and with the best advice, we felt that the really radical and effectual cure for the want of motive power hitherto, and the possibility of its recurrence was to use steam; and we have accordingly taken steps under the best advice and under the superintendence of an engineer whose skill we are well aware of, we have entered into a contract for the supply of adequate steam machinery for the purpose of driving the whole of our machinery when we require it, and when we have plenty of water we can disengage the steam and the water can do its work. With regard to the balance-sheet, which is always a matter of very great importance, taking the most important part, which is the result of our working, there has been a balance of expenditure over the ore sold of 5457*l.* 13s. 7d., that is in the two years we have been at work. That is the apparent loss on the mining account, but we have about 8000 tons of ore wrought but not used, and of partially worked ore which would represent a very much larger sum than that. Indeed, as we explained when the last balance-sheet was presented, we were disposed to assess that at a value and so alter the loss into a profit by putting that amount to our credit, but our auditors advised us to explain it and leave the accounts as they are. We calculate that we have about 9030 tons of ore ready to dress, and we have every reason to believe that it will yield a much larger sum than will suffice to cover the total loss on the mining account. With regard to the capital account, we see our way to partially closing that account, and that will be very satisfactory to the body of shareholders. All we have to show is that our money has been carefully and well expended, and I think we shall soon forget our loss, and without any undue assumption of prosperity soon present much better accounts than we have presented hitherto. The outlay on capital account for the year has been 7974*l.* for machinery, construction of buildings, plant, ropeway, tram-wagons, tools, &c., the whole of the items being stated there. We have supplied that by the issue of the bonds authorised at our last meeting. We have issued 17,000*l.* of bonds, and that has served to defray the charges on capital account as stated here. Since June 30 we have defrayed a number of sums for creditors in France, and merchants and others have been paid off. The capital account now stands in a very fair condition. The Chairman gave the details on the present state of the capital account, which showed a debit balance of 424*l.* To meet this, and for the purpose of providing the further capital required, the shareholders were asked to authorise the issue of a further amount of capital not exceeding 10,000*l.* Having read the latest report from the manager, Mr. Glanville Jeffree, dated Oct. 18, the Chairman mentioned that the directors and Mr. Bullivant between them held about three-fourths of the capital. He then moved the adoption of the report and accounts.

Mr. SHILLATOR seconded the motion.  
Mr. WILLIAMS asked whether the ore from the north lode was considered to be as valuable as it was a year ago? He saw great hope for the future in the discovery of the south lode.

Mr. URWICK thought that in spite of their valuable property they were drifting from bad to worse. He complained that the general expenses were too heavy, and joined with the Chairman in expressing the hope that Mr. Bullivant would join the board.

Mr. WALKER asked whether the directors contemplated selling any portion of the concession? He thought they should do so if possible to benefit the present shareholders. Some other parts of the concession might be equally as good as those which were now being worked. He understood that it was intended to sell this sort of part of the company, which would sell portions of the concession to other companies. Were they going to apply to the Stock Exchange for quotation, and had any damages been claimed for the delay in supplying the machinery? He considered the home expenses very heavy seeing that the shareholders had received no dividend for nearly three years.

The CHAIRMAN, in reply, said the company went into a *terra incognita*, believing that they would have a very valuable property; but as to what was to be met with or how it would be worked could not be foreseen. However, they were now got over their difficulties, and all the steps had been taken to ensure the success which he believed they had the right to expect. The directors were not open to any charge of inattention to their duties—(hear, hear)—nor for swelling the expenses of the company, in which they were by far the largest shareholders. They had received nothing for their services—(cheers)—and he thought their expenditure in London was exceedingly moderate, being only 750*l.* per annum, including 500*l.* directors' fees, which were not paid. As to our claim for delay in supplying the machinery, the contractor claimed 1200*l.*, but this has been settled for 755*l.* without law or arbitration. They would shortly apply for a Stock Exchange quotation. As to the value of the property it was undoubtedly of great value, extending over 40 square miles. Negotiations for the sale of a portion of it for 20,000*l.* were in progress, but the commercial depression in France became so great that it fell through.

The report and accounts were unanimously adopted.  
Mr. BULLIVANT, in moving the re-election of Messrs. A. L. Jeffree and J. Rutler, the retiring directors, said he was the largest shareholder in the company, and from personal inspection he had convinced himself of the valuable character of the property. The hand-picked ore had realised 12*l.* 15s. per ton, and the whole of the working expenses and freight probably did not exceed 3*l.* 4s. per ton. If they got sufficient ore of this character they would have very large profits. (Hear, hear.) With the exception of the directors and himself the shareholders had not found 1000*l.* in debentures, and he thought they were very much indebted to the directors for bringing the company to its present position. (Hear, hear.) He had sent an engineer to inspect the mine for him, and this gentleman had sent some specimens, which he had submitted to analysis. One yielded 102 oz. of silver and 80 per cent. of lead to the ton, while another gave the percentage of 114 oz. of silver per ton. His engagements were so numerous that he could not join the board, but he would do so as far as possible. He was the board and the shareholders. (Hear, hear.) Mr. WALKER, in seconding the motion, said he had been through the mine, and was highly delighted with what he saw there. The motion was put, and carried *unanimously*.

On the motion of the CHAIRMAN, seconded by Mr. ASHBY, the directors were authorised to raise a further sum of 10,000*l.* on debentures or in such other manner, at such interest and conditions as the directors may be able to arrange, and that the directors be authorised to execute such documents as may be necessary to secure the same.

On the motion of the CHAIRMAN, seconded by Mr. ASHBY, the option given to the preference shareholders of converting their shares into ordinary shares was extended for a period of three months, from Oct. 20. The first annual drawing of the debenture bonds then took place, the numbers drawn being 4, 11, 29, 23, 36, 42, 49, 50, 65, 69, 71, 83, 101, 105, 129, 147, 159, 171, and 175.

Messrs. Turquand, Youngs, and Co., the auditors, were re-elected.  
A cordial vote of thanks was passed to the Chairman and directors, and the proceedings then closed.

#### RIFON GOLD MINING COMPANY.

The annual general meeting of shareholders was held at Bombay on Oct. 2.—Mr. DINSHAW MANOCKJIE PETIT in the chair.

The SECRETARY read the notice convening the meeting, and the directors' report and statement of account were submitted. The accounts to the end of July show a credit balance of 19,113 rupees 3 annas 5 pice., or about 1900*l.*

The report of the company's resident engineer, Mr. Ralph Hill (Aug. 30), shows that, notwithstanding the difficulties with which Mr. Hill has had to contend, considerable progress has been made in the mining work. The falling in of shaft No. 1 has been a serious drawback; but, as will be seen from the working plan of Reef No. 1, a new shaft has been sunk, which will strike the tunnel at a depth of 128 ft. after passing through the reef. This new shaft has, Mr. Hill states, been carefully timbered. The tunnel had, on Sept. 4, been driven 123 ft., and was being carefully secured with timber as the work proceeded. A tramway is also being laid along the tunnel, by which means the quartz can be taken direct to the machinery as soon as the shaft and the tunnel meet. Notwithstanding the difficulties and delays caused by the heavy downfall of rain, the erection of the machinery has progressed satisfactorily, and that Mr. Hill is still confident of being able to start crushing operations by the new year.

As regards the quality of the stone Mr. Hill writes in an encouraging manner, and the directors hope that as soon as all the difficulties connected with the erection of the machinery have been overcome, the result of the crushings will show that Mr. Hill's prognostications have been well founded. The directors regret that so large a sum remains outstanding on account of overdue calls, as this fact betokens a want of confidence in the final success of the company which the present encouraging aspect of affairs does not in any way justify. The amount shown in the balance-sheet, as overdue on account of calls on July 31 is 59,496 rupees which has since been reduced to 58,480 rupees. The directors regret to report the loss of a valued colleague by the death of Mr. Sorabjee Jamsetjee Jejeebhoy. The vacancy thus caused has not been filled up, and it is proposed to reduce the number of directors to seven.

Mr. RALPH HILL, in his long report upon the operations at the mines, says—Our work for the last 10 weeks, with the very heavy rains we have had, has not only been greatly retarded, but some of it very much damaged. Since my last report, dated April 17, we sunk the shaft on No. 1 reef to a depth of 80 ft.; we then put in a cross-cut east 15 ft., and struck the reef about 2 ft. 6 in. in width. We found visible gold in the stone, which showed very fair prospects in crushing. There appeared to be very little pyrites as far as we opened on it, and I was very much pleased with its appearance. We started to sink a winze on the course of the lode, but when down 4 ft. the men came on so heavily that it brought the earth together before we had a chance of securing it. I started a new shaft which when down 60 ft. had to be stopped, owing to the quantity of water, but this shaft is now securely timbered. There is a tunnel at the foot of the hill, which is now in 120 ft., and will have to go 290 ft. to meet the shaft. This work, up to the present, has been very troublesome on account of the ground being so wet; this, however, will be all right as soon as the rain ceases. The shaft will be used to work the lode from, and to lower the quartz to the tunnel, and thence to the battery. A cart-road has been made from the tunnel to the main road. We are taking out stone from the outcrop on the hill. This stone will be ready to be sent down when the tunnel and shaft are completed. This stone looks very fair; I think from 7 dwts. to 9 dwts. stone.

The very heavy rains have thrown back the mining, but a similar hindrance will not occur in future. The dam is completed, and as it has stood during the heavy rains it has become very solid. We have now to sink a shaft, and put a tunnel in from the dam, from which the water will be pumped to supply all purposes. This will be done as soon as the weather breaks. As to the machinery, all the foundations for the battery are in; the five columns, two boxes,

and 10 heads are also all in their places. There are only six pieces of machinery more to come, which have been on the road some time, and everything is in readiness for them. The engine frame is up, and the bed of the engine in its place. We have a large hopper that will hold about 500 tons of quartz almost completed. The erection of the house has been commenced, and everything is being pushed on as fast as possible. We have been greatly delayed for want of timber and from having to wait for parts of the machinery to come up. We have three native boiler-makers putting the boiler together, but they are very slow, and when we come to set it in its place with native bricklayers it will be a tedious job, and I am afraid it will retard us. The other work we shall soon be able to proceed with quickly, and when completed, gentlemen, you will have a crushing plant second to none in India, and what is more have something profitable for it to do. I still hope, as I promised, to be able to start crushing by the new year. I cannot promise sooner, as I do not know what delay may occur.

#### NEW TERRAS MINING COMPANY.

The statutory meeting of shareholders was held at the company's offices, Grampound-road, on Oct. 21.—Mr. B. SYMONS in the chair.

Mr. D. GOURLAY (the secretary) read the notice convening the meeting; and, in reply to an enquiry, it was stated that out of 17,500 shares there were only 3000 left, and it was unanimously resolved that 1000 of these be left in the hands of the committee to be disposed of at not less than par.

The CHAIRMAN remarked that men were engaged in preparing the site for the dressing appliances in a convenient position, which the former workers had not. The engine-shaft was being sunk and cased in a proper manner. The lode which had been exposed in the adit was very wide and tiny throughout, part of it being very rich, producing 2 dwts. to the ton; the lode was sure to yield a profit on the working under the intelligent management which would be applied to it. When the stamping machinery was ready for the reduction of the tinstone, and a little time allowed for the dressing business profits might fairly be looked for. The speculative element was not associated with their property. Besides the tin contained in the great elvan course, there are in the self several lodes of promising character, which would be investigated by-and-by, but for the present attention would be limited to the great tiniferous elvan, and the lodes converging therein. The enclosure in which the operations would be carried on being paid for, no further charge for waste could be made, and there were five years' minimum rent paid in advance. It was probable that the success of New Terras would become a stimulus to mining industry in the parish of St. Stephen, where mining was in its infancy, except at Dovern Mine, which at one time was informally profitable.  
Capt. F. R. PAVON, the agent, reported that very satisfactory progress had been made since the company took possession of the mine. They had put up the necessary buildings, and were clearing the stamping mills and dressing-floors—shaft and close timbered the same for 6 fms. This shaft was 9 ft. long by 6 ft. wide. They had cleared the adit 80 fms., and timbered the same in places where necessary, and had opened the great stope over the winze which was in the heart of tin ground. They should push on the sinking of the engine-shaft, and when they reached 20 fms. in depth they would open up the lode, which would unwater it, and from which almost any reasonable quantity of tinstone of a very superior quality would be procured at the least possible expense. One fact worthy of notice was that the deeper the lode had been explored the richer it was found.

The SECRETARY had never seen a mine brought out in a more economical manner. The whole of the shares taken up had been subscribed for through the exertions of the Messrs. James, the managers, and as soon as the mine was in a position to show any results the shares would become more marketable. It was not the intention of the company to call up any capital which was not absolutely necessary for the working of the mine, and the call due on Oct. 1 had not yet been made.

The report of Mr. F. Ashwell, C.E., M.E., was submitted, and several shareholders having expressed their entire approval of it, the proceedings terminated with the usual complimentary vote to the Chairman.

#### EAST CRAVEN MOOR LEAD COMPANY.

The annual general meeting of shareholders was held at the mine, near Pateley Bridge, on Oct. 12.

Mr. RALPH H. SILVERSIDES in the chair.  
Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, and the minutes of the previous annual meeting were also read and confirmed.

The CHAIRMAN regretted that the depression in lead continued, but was hopeful that better prices would take place, and that before long consequent upon the requirements for electric lighting. Lead being at the present by far the cheapest metal known for the storage of electricity. The only three metals yet known that are suitable for such purpose are silver, copper, and lead. The first is out of the question for such purpose on account of the price, and as there is a difference of nearly 60*l.* per ton between copper and lead, the latter being only 14*l.* to 15*l.* per ton is certain to be the metal for which a demand will be created by the use of electricity for lighting. He, the Chairman, knew of one contract for 400 tons a month for the purpose, and as electric lighting became more general so would the consumption of lead undoubtedly increase. He moved that the balance-sheet and profit and loss account for the year ending June, 1882, be received and passed. The proposition being seconded it was unanimously resolved—That the same be received and passed (E. and O. E.).

The directors report as follows:—The directors have to report that during the past financial year, ending June 30 last, the sales of pig-lead, after deducting the dues—1-14th pig—realised 2123*l.* 13s. 1d., which in amount is the same as was sold during the year ending June 30, 1880. The amount of lead sold during five and a half years is 6750*l.*, of which 4247*l.* has been realised during the last two years, and that for an average price of only 13*l.* per ton, as against 20*l.* per ton in 1877—the year in which this company purchased the mine—the market retained the old prices for lead, instead of a loss of 33*l.* 6s. 6d. as shown by the profit and loss account, a profit of 760*l.* odd would have resulted from this. The mine continues to open out in the most satisfactory manner. Our main shaft is down 73 fms., for about one-half of which depth it was found that the ore had been taken away by former workers; but, below the old explorations, the lode on which we have confined our operations since the severe depression in the lead trade, has been and still is a good and productive one. On the whole, the directors consider that the prospects of the mine are very satisfactory. All that is required to enable them to pay dividends is a better price for its produce, and which may very reasonably be looked forward for at no distant date. Nevertheless, taking into consideration the unremunerative price obtainable for the mine produce, the directors think it desirable to considerably reduce the expenditure by stopping all unprofitable points of operations until such time as better prices be obtainable for lead. Although it is within their province to act as they consider best in the interest of the shareholders, and stop operations to within certain specified limits, they have preferred waiting until the general meeting, with a view of consulting with and having the opinion of their fellow shareholders upon the subject. The directors regret to report two accidents, each of a serious nature, one to the machinery, causing stoppage of our pumping and driving gear for some three weeks; the other, a far more serious case, happened to Evan Owen, while attending to his duties at the 76. He through an over desire to push on the adit, approached too soon after the firing of some of the blasting charges; one charge had not fired, and Owen unfortunately approached and received it in his face. The poor man, besides being terribly cut about, has entirely lost his sight. A subscription was nobly commenced by the miners, to which the directors, acting on the powers vested in them, added the sum of 20*l.* This is the explanation for the item 20*l.* donation to the Evan Owen Fund in the profit and loss account. The directors respectfully request the manager is herewith sent, and a full report will be prepared by the resident agent for the meeting. In accordance with the Articles of Association, one of the directors, Mr. West, retires by rotation, but being eligible, offers himself for re-election. The auditor also offers himself for re-election.

It was resolved—That the directors' report be received and approved, and, in consequence of the continued exceptionally low price obtainable for pig lead, operations, so far as dead-work was concerned, be confined for the present to driving the 76 west to get under the rich ore ground proved in the winze, and down 10 fms. below the 54, and sinking the new shaft to command (as it will) Nos. 2 and 3 sections of ore ground.

The SECRETARY read the agents' report, while Capt. WILLIAMS pointed out on the plans the underground workings, and where the ore had been taken from, also a long cross-cut driven through very hard ground to reach the main lode west of the heave at the 76, which level was within 17 fms. of being under the winze; also shown on the plans where they had a splendid course of ore going down, and rich in both ends. The second shaft had been commenced from surface expressly to command, what he termed No. 2 and 3 sections of ore ground below the 76, and would be in a line with the winze. This shaft would dispense with the necessity of cross-cutting through the hard ground in future from No. 1 section of ore ground to Nos. 2 and 3 sections.

Agreeably with your request I have the pleasure of giving you a short résumé of the operations carried on here, with the results obtained during the past year, for the shareholders' meeting to be held on the mine to-day. Beginning with the new shaft, which is our principal point of operations, situated on the north side of our set, from whence the whole of the parallel lodes, by means of a cross-cut driven south, can be successively reached, and close to the high road, thereby affording easy access to the railway station and the smelting works of the lord of the mineral, where our ore is calcined and smelted into pigs of lead of 1 cwt. each (being of the best quality for chemical sheets, &c.), for which we have always a good local demand. The shaft has been sunk, cased, and divided upon the course of Hargrave End lode to a depth of 78 fms. below surface, with flats cut and drivages extended both ways upon the lode, at the 76, 54, 52, and 42, the richest point being in bottom or at the 76, where the lode is 10 ft. wide, and works 4 tons of lead ore per fathom. The 76 east has been extended 19 fms. from shaft in a wide and productive lode, the back of which has been stoped away at 30*l.* per ton of dressed ore. A winze sunk 5 fms. below the level in a lode worth 2 tons of ore per fathom. The 76 west has been extended from shaft 31 fms. 3 ft. in almost a continuous course of ore, which is being stoped at 80*l.* per ton of dressed ore. The main part of the lode at this point has been heaved or thrown south a distance of 24 fms. by a cross-cut driven to intersect the same, and a drivage west upon the lode 3 ft., and is now within 17 fms. of reaching the second section of ore ground below the 76, and the lode here, on the whole, is both wider and richer in ore than the 54 above at the corresponding distance from the shaft, and inasmuch as we shall gain over 22 fms. of additional backs, high and dry to stop away. I consider our prospects here as highly encouraging for increased returns of ore for the ensuing year. A stope in back of the level in a lode 2 ft. wide, and worth 10 dwts. of lead ore per fathom, wrought at 100*l.* per ton of dressed ore. The 54 has been extended west of the heave 50 fms., or a total distance of 103 fms. from the shaft. The lode in the end is 4 ft. wide, composed of spar, gossan, and branches of lead ore. No. 1 stope in back of the level, in a lode 3 ft. wide, and worth 20 dwts. of lead ore per fathom; we have also three pitches in back of level, wrought at 100*l.*

per ton of dressed ore. A winze has been sunk 10 fms. below the level, with drainage commenced both ways upon the lode, which is 4 ft. wide, and producing 2 cwt. of ore per fathom. On surface we have commenced sinking a second shaft to command both the second and third sections of oreground, west of the lode. We have added a second dressing-floor, with a small crusher to treat the tailings ore. During the past three years we have raised and dressed 920 tons of lead ore, 358 tons of which has been raised during 12 months, besides having in reserve a section of oreground 40 fms. long by 22 fms. in depth, to take away. Our machinery throughout the mine is in excellent order, and working well.—  
DAVID WILLIAMS, M.E., F.R.G.S.

Resolved.—That the agent's report be received and, together with the report of the meeting be printed and circulated amongst the shareholders.  
A SHAREHOLDER commented upon the excellent plan and section of the mine, which enabled the operations mentioned in the report to be so clearly understood.  
Mr. GRANVILLE SHARP observed that the plans were the work of the manager, who was rather proud of them. Several mining engineers who had seen them in the London office were very favourably impressed with them, and some said they had never seen such excellent plans before.  
A resolution was passed.—That the secretary make application to Mr. John York, the lord of the manor, for a reduction of the dues, consequent on the continued depression in the price of lead.

The retiring director, Mr. West, also the auditor, Mr. Drew, were re-elected.  
Two SHAREHOLDERS, present for the first time, were very agreeably surprised. One from Oldham admitted that he came to see the mine under an impression that it was a poor concern. This visit had entirely removed that impression, and he was glad he had paid the mine a visit. It was evident that the low price of lead was the only thing the mine had to contend against. He was strongly of opinion that the time was very near for better, and much better prices being obtainable for lead.

Another GENTLEMAN, holding 700 shares, had heard such unfavourable reports from some brokers in London respecting the mine, that he came from Manchester expressly to see for himself, and expressed himself perfectly satisfied. He considered the shares worth a premium instead of being quoted at a discount.  
The MANAGING DIRECTOR said his experience was that everyone who had visited the mine went away with the same opinion as those present to-day for the first time, and that the shareholders did not take more interest in the mine and visit it themselves, instead of listening to and permitting themselves to be misled and influenced by others.

A cordial vote of thanks was passed to the Chairman for the very courteous manner he had presided on the occasion. It was also unanimously resolved that a vote of thanks be recorded in the minutes to the managing director—Mr. Granville Sharp—and to the resident manager—Mr. David Williams, M.E., F.R.G.S.—for their unfailing attention to the interests of the shareholders.

Mr. SHARP expressed his thanks for the manner the vote of thanks had been recorded to himself and Capt. Williams. He admitted feeling great interest in the mine, and made it his duty, in conjunction with the manager, who certainly was worthy of the vote just recorded, to consult together in the operations of the mine for the benefit of the shareholders. Capt. Williams had, he considered, and so he expressed himself when underground yesterday, carried on and performed during the last three years such an amount of work that he (Mr. Sharp) thought Capt. Williams might safely challenge any mining agent to compare a similar amount of work accomplished in the same time. An inspection he made yesterday convinced him that East Craven Moor was a far more valuable property than at this time last year, and that the bottom of the shaft where the lode is larger and richer than at any other level, and the reserves partially opened up in the second and third sections of the lode.

Capt. WILLIAMS (the manager) briefly returned thanks for the renewed vote of confidence so unanimously recorded.

#### WEST CRAVEN MOOR LEAD COMPANY.

The annual general meeting of shareholders was held at the mine, near Pateley Bridge, on Oct. 12.

Mr. R. H. SILVERSIDES in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, also the minutes of the previous meeting, which were confirmed.

The balance-sheet and profit and loss account was received and passed. The directors' report as follows:—

The directors have much pleasure in reporting that very satisfactory progress has been made since the last general meeting, although in some parts the ground has been very hard and difficult to drive. The adit or water level has been driven up to and communicated with the main shaft sunk to meet it 17 fms. below the 20, and operations are now being continued free from any impediment of water. Thus, a most important undertaking has been accomplished, and the adit, which is some 700 fms. in length, a thoroughly good horse level with tramway throughout, will now permit of operations being carried on to intersect the many veins or lodes running parallel, both north and south of the adit, without the necessity of the pumping-engine with its attendant costs. Towards accomplishing the intersection of no less than four lodes on the north a cross-cut is already driven 13 fms. A further distance of 55 fms. will intersect and water these four well known lodes. On the south of the adit a cross-cut is in 34 fms., and according to the indications in the end, is very close to (not more than a few feet) one of the champion lodes of the mountain—Foxholes vein or lode. There are other lodes within a few fathoms of each other which the cross-cut will intersect, all of which will be drained by the adit, thus permitting them to be worked high and dry. It will be remembered that it was with a view of carrying out and of proving the important objects referred to, the directors with and by the consent of the shareholders raised money on mortgage. It was, in fact, the only way in which further capital could be raised, and with a view of erecting a shaft to secure, if he felt so disposed, an interest in such mortgage, which is a first charge upon the mine, with its plant and machinery, the directors issued debenture bonds of £5 and 10£, each bearing interest at the rate of 6 per cent. per annum, which interest has been met by sales of lead. The produce of the mine which promises to not only continue such returns, but when the parallel lodes north and south are gained to at least meet current costs in addition, and that too at the present very low price of lead. Such is the immediate, and the directors consider very satisfactory, prospect of the mine, of which they always entertained a high opinion. In accordance with the Articles of Association, one of the directors, Mr. Burt, retires by rotation, but does not offer himself for re-election. (Mr. Burt, in August last, had an attack of paralysis, since which he has not attended the office of the company.)

Your directors also regret to announce the death by apoplexy of your late auditor, Mr. Green, and that they appointed Mr. E. J. Drew to audit the accounts presented this day. The reason the report of the directors has not been presented prior to it being presented to-day is—our managing director was desirous of making an inspection of the underground workings, which he did yesterday, before their report be submitted.

Resolved.—That the directors' report be received and approved. The resident agent's report having been read, as follows:—

New East Shaft: This shaft has been sunk, cased, and divided, with a good and substantial ladder fixed to a depth of 37 fms. below surface, at which depth it has been communicated with Blackhill adit level, with plate cut and drivages extended both ways upon the course of No. 2 vein at the 30 and 20. A rise at angles with the shaft to the level is up 2 fms. 3 ft. in a lode 2 ft. wide, filled with limonite, sulphate of barytes, and patches of lead ore, being good saving work for dressing. The 30 has been extended east of shaft 6 fms. in a lode 2 ft. wide, filled with spar, gossan, and lead ore, worth 12 cwt. per fathom, wrought at 90s. per ton of dressed ore. A stope in back of the level, in a lode 2 ft. wide, and producing 12 cwt. of lead ore per fathom, wrought at 90s. per ton of dressed ore. The 20 has been extended east of shaft 60 fms.; we have here a series of winzes sunk below the level with a view of proving the value of the lode at an increased depth, which, so far as proved will produce on an average 15 cwt. of lead ore per fathom. The south of cross-cut the parallel lodes has been extended 33 fms. The general character of the country rock has considerably changed of late, and appears as if close to a productive lode.—Blackhill Adit Level: We have two stopes below this level, under Ashworth's old workings, in a lode 4 ft. wide, and producing 20 cwt. of lead ore per fathom. Having communicated new east shaft with this level, which enabled us to commence driving the north cross-cut to reach and unwater a series of productive lodes in the north part of our set, which has always been considered as a point of first importance, inasmuch as it will drain and make available for stowing a large amount of additional oreground upon the various lodes which cannot otherwise be worked for water. Our machinery throughout the mine is in good working order, and has a good parcel of ore in course of smelting.—DAVID WILLIAMS, M.E., F.R.G.S.

Capt. WILLIAMS, while his report was being read by the SECRETARY, explained and pointed out on the plans and sections of the mine (which had been dialed up to the last setting day), the position of the underground workings, and stated that he had carried out during the past year two most important points, not only for the present, but for the future development of the mine—the sinking of New East shaft, and the bringing up of Blackhill adit level under and communicating with same, thus giving thorough ventilation throughout the mine, and enabling the main cross-cuts to be driven and unwater the several well-known lodes north and south of the shaft, which could not otherwise be worked, except at a very heavy and continuous cost by pumping machinery. He now hoped to get some of the lodes, and rich, too, during the ensuing year. The returns of ore had been more regular of late, and would now be increased, and with a better price for lead, he considered their prospects, on the whole, more favourable than in any previous year since the inception of the company.

It was resolved.—That the agent's report be received and passed, and together with the report of the meeting and the directors' report be printed and circulated amongst the shareholders.

The appointment of Mr. Burt's successor to be made at a future meeting, also that the appointment by the directors of Mr. E. J. Drew, of Imperial Buildings, Queen Victoria-street, as auditor, in the place of Mr. H. J. Green, deceased, be, and is hereby confirmed, was passed unanimously. A vote of thanks was recorded to the Chairman for his able and courteous conduct in the chair, also to the managing director and secretary—Mr. Granville Sharp—and the resident agent—Mr. David Williams, M.E., F.R.G.S.—for their perseverance and attention in the conduct and development of the mine.

The MANAGING DIRECTOR expressed his regret that lead continued to be so depressed, it was the low price obtainable for the mines' production that alone has prevented West Craven Moor from being a remunerative concern. The operations carried out and those in course of prosecution would bear the inspection, and he doubted not the entire approval of the most experienced mining engineers, for this it is to the resident agent, Mr. Williams, our praises are due. He has been most anxious and desirous to push on operations in order to reach the rich lodes referred to in the directors' report, unmistakable evidences of which are at surface. These important objects would have been reached ere this but for the delay in acquiring the means—additional capital—necessitated solely in consequence of the very low prices only obtainable for lead.

The MANAGER (Mr. David Williams) was more satisfied than ever that West Craven Moor Mine was a mine of mineral wealth, as the lodes running parallel both north and south of the new west and new east shafts would undoubtedly prove. A very heavy cost had been incurred in bringing up the adit level to the point where it is desirable to drive cross-cuts in order to reach the several lodes and unwater same down to that level, which is 37 fms. from the surface, a fact of the utmost importance, and which it is very possible but few realize, but, nevertheless, it is a reality that West Craven Moor can now be explored, and for many years to come, by means of the adit level carrying off the

water. The object now is to reach the many lodes both north and south, lodes which are undoubtedly highly mineralised, proved so by surface excavations to a great extent, as can be seen in going over the backs of same.

#### GOVER CONSOLS.

The ordinary general meeting of shareholders was held at the offices, Old Jewry, on Monday—Mr. F. TAMBLYN in the chair.

Mr. T. WILLIAMSON (the secretary) read the notice calling the meeting. The report and accounts were taken as read.

The CHAIRMAN said—Gentlemen, this meeting has really become very formal. You were nearly all present last week, when we had an extraordinary general meeting, and, as might have been anticipated, that extraordinary meeting has somewhat taken the interest out of this ordinary general meeting, which would have been held earlier had it not been for the omission of the notice from one of the papers. But the report was informally submitted to the shareholders at the extraordinary general meeting, and I believe approved and accepted by them, after which they passed resolutions agreeing to amalgamate the Indian Queens, the Parks Consols, and the Gover Consols as the Trevarren Consols, so I think now all I have to do is to formally move that the report and accounts now before the meeting be received and adopted.

Capt. VAUX: I beg to second that resolution.—The resolution was put to the meeting and carried unanimously, and the meeting broke up.

#### GLENROY LEAD MINING AND SMELTING COMPANY.

An extraordinary general meeting of shareholders was held at the offices, Austin Friars, on Thursday.

Mr. J. Y. WATSON, F.G.S., in the chair.

The SECRETARY having read the notice convening the meeting,

The CHAIRMAN stated that this meeting was called to confirm the resolutions for voluntarily winding-up the company and appointing liquidators, unanimously passed at the last meeting. It would be remembered that the shareholders then present, although agreeing that liquidation was the only practicable course to pursue, were strongly of opinion that before confirming these resolutions a strong appeal should be made to the shareholders with a view to obtaining sufficient support to warrant them going on with a scheme of reconstruction then suggested. In compliance with the promise then made the secretary had issued a circular detailing the whole of the circumstances, and inviting promises of subscriptions to a proposed new company to take over the mine as a going concern. He regretted to say that the responses to this appeal amounted to only about 250£, or 300£, and there was consequently nothing for them to do to-day but proceed with the liquidation, leaving the liquidators to do the best they could with the property. He, therefore, formally moved the confirmation of the resolution for winding up the company voluntarily.—Mr. LAMB seconded the resolution.

Mr. BALCOMBE said he thought the shareholders should have made an effort to preserve the mine, as from what Capt. Rowe had stated to the meeting in August there appeared to be some highly promising ground, which if vigorously worked might enable them to recoup their former losses. He thought it a pity that this had not been more dwelt upon in the secretary's circular.

Mr. J. H. A. SMITH said that a report from Capt. Rowe on this matter, with a circular from the office calling attention to Capt. Rowe's recommendation, had been issued in August, and the board had then endeavoured to raise sufficient funds to make the trials referred to, but the shareholders having failed to provide the small amount of capital asked, the directors had no alternative but to take steps for liquidation.

The CHAIRMAN stated that their accounts now about balanced, and he would be no party to incurring debts which they might be unable to pay.

Mr. BALCOMBE said if the shareholders were so apathetic that they would not come forward to protect their own interests, he feared that a voluntary liquidation was their wisest course.

The resolution was then put and carried unanimously, as was the resolution confirming the appointment of Messrs. Murellson and Lamb as liquidators, and the proceedings then terminated.

#### UNITED VAN CONSOLS AND GLYN LEAD AND BARTYTES COMPANY.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, on Tuesday.

Mr. PRYCE JONES in the chair.

For the purpose of confirming the resolutions passed on the 4th inst. for the winding up of the company, the appointment of Mr. E. R. Morris as liquidator, and authorising the sale of the whole of the property, &c., to a new company, to be entitled the New Van Consols and Glyn Mining Company.

Mr. JAMES COOPER (the secretary) read the notice calling the meeting, and also the last report from Capt. Roach from the mines.

The CHAIRMAN said that though only a small number of shareholders were present at the meeting, he must say that he was not at all dissatisfied with the attendance he saw before him. He must apologise for not being able to occupy the chair on the last occasion when they were called together; but at that meeting he was ably represented by his friend and his friend, his colleague on the direction, Mr. Joseph Rock, who placed the position of the company very clearly before them, and brought to a very satisfactory conclusion the business of the day, and he had personally to thank that gentleman for his services on that occasion. Since that meeting nothing much had occurred save except that the mine had not at all diminished in value. From the report that day read it would be seen that progress was being made, though not to that extent anticipated. He (the Chairman) believed in the mine, and would invest his savings in it, and would take the results as a recompense for those investments. It was not necessary for him to go into any details at this meeting. Shortly after the last meeting they sold the 30 tons of lead then referred to, and since then they had sold a further 35 tons—on Saturday last, at the price of 8£. 12s. per ton, producing 287£, sufficient to cover the working cost of the last month, and Capt. Roach considered there was every prospect of the output being 30 tons per month for the next 12 months from the ore actually in sight, without taking into account any fresh discoveries. He (the Chairman) believed that if only the additional capital required was found there was a very great future indeed for the Van Consols Mine. He need hardly say that if lead was at its normal value of 13£, or 14£, it would be a dividend-paying mine at once. He had no doubt that the shareholders would unanimously confirm the resolutions; but he hoped they would do more than that, which was to place a little more capital in the company, and induce their fellow-shareholders to do the same, for he was not afraid of the results. He would be happy to answer any questions.—Mr. JOSEPH ROCK seconded the confirmation of the resolutions.

The CHAIRMAN, in reply to a shareholder, stated that it was necessary to find funds to develop the mine and pay the working expenses, besides which they had debts to meet to the amount of 3000£.

Mr. BOLTON, jun., considered that there was every prospect of the price of lead improving in the future; not only was there every prospect to believe that a considerable demand was likely to spring up for electric accumulators; but he understood that arrangements were in progress which it was not desirable to make public, which would add greatly to the value of lead at no distant date.

Mr. J. ROCK stated that he fully endorsed what had been said by Mr. Bolton, and but for that reason—lead mining companies being forced to sell lead in order to pay working expenses—he saw no reason why lead should not be at 14£ per ton, the lead trade appeared to be the only one that was unprotected. By the reconstruction of the company they would be enabled to do away with the debentures and preference shares, and there being only one class of shares, they would present no difficulty to the gentlemen of the Stock Exchange dealing in them. He thought the company had a great future before them.—The resolutions were unanimously confirmed.

Mr. TAYLOR asked some questions in reference to the reconstruction scheme, and as to the proposed directors of the new company.

Mr. STACPOOLE, the solicitor, said that he had prepared the Articles of Association of the new company, and they had been submitted and approved by the Chairman and Mr. Rock. The names of the directors of the old company had been inserted as the board of the new company.

Mr. MORRIS said that he must decline acting as a director of the new company, and it was agreed that Dr. Gillow should be asked to occupy the position on the board thus vacant.

The CHAIRMAN stated that Mr. Petrie had always taken such a deep interest in the affairs of the company and was a large shareholder, and he was very desirous that he should occupy a seat on the board.

Mr. PETRIE did not have any desire to go on the direction; but if the Chairman would agree to continue in that position, that gentleman having hinted at retiring from the board, he would consent to act with him as a director.

The CHAIRMAN consented to the arrangement.

Mr. STACPOOLE, in reply to Mr. TAYLOR, stated that he was prepared to register the new company at once. In order to carry out the liquidation, all the books and papers of the old company would be handed over to Mr. Morris, the liquidator, but that would not interfere with the reorganisation scheme being carried out.

A vote of thanks to the Chairman and directors closed the meeting.

WHEEL AGAR.—At the meeting, on Oct. 20, the accounts for the four months' working showed a loss of 2556£. 13s., increasing the debit balance to 5798£. 5s. A call of 10s. per share was made, after payment of which the concern will still be nearly 2500£. to the bad. The agents' report was considered, on the whole, satisfactory. Capt. Trevenna stated that the losing of the pole at the 170 had retarded their working operations for four or five weeks, and that meant a loss of 1000£.

SPARE CASH: WHAT SHALL I DO WITH IT?—Mr. Alfred Thomas, of Coleman-street, has published a new pamphlet on mining and general investments, which is likely to enhance his reputation as a guide to investors. Some of his former predictions in regard to mining have come singularly to pass, and justify him in once more appearing before the public as an adviser at what he terms a critical time in mining. He is somewhat severe on Indian Gold Mines, but it is hard indeed to get away from his facts. He thinks also that those who are mining on the Gold Coast would have done better to

await the result of the first speculation in this direction, but he is condemnatory in the highest degree of the "Electric Light Mania." He reminds us up to the present time, 50 companies have been started, and their capital, presuming it all to have been subscribed, reaches several millions sterling. His denunciation of the "Parent Company" system is none too severe, and his conclusion is sound:—"My advice to investors is to wait, and not to join the mad rush which we have seen in electric lighting. All things come to those who know how to wait, but the time for prudent investors to put their money into electric light companies has not yet arrived." Mr. Thomas is most at home in dealing with British mines, for which he anticipates better times. He is encouraged to believe that the lead trade will improve, and that shares will advance far beyond the present low quotations. He gives a list of mines in which he thinks investment desirable, and they seem to have been well and carefully selected. Most of them have been personally visited by him lately, and this cannot fail to add force to his recommendation, because he is recognised as an authority on practical mining. In some 15 short but terse chapters Mr. Alfred Thomas sets forth his views on mining and general investments in a way that carries his readers along with him, and stamps him as one well qualified to give advice on the complicated subject of the profitable investment of money. The pamphlet merits the careful perusal of all persons into whose hands it may fall.

#### THE WHITE DIAMONDS OF SOUTH AFRICA.

For the last ten or twelve years scarcely a mail has arrived from the Cape without bringing a consignment of diamonds, yet only so recently as 1870 South African diamonds were exhibited as curiosities, and not only geologists, but scientists, generally put forward the most curious speculations as to how the diamonds got there, even when they were credulous enough to admit that they came from the districts which were claimed to have produced them. At a meeting of the Royal Geographical Society in June, 1868, the late Prof. Tennant's reference to "the discovery of diamonds in a new locality, the Cape Colony," was received with impatience, the majority of the members appearing to think that the question was only raised to direct attention to the stock of certain West End tradesmen, for it was stated at the time that Messrs. Garrard, the jewellers of the Haymarket, had in their possession two of these South African stones, belonging to Sir Philip Wodehouse, weighing 2½ carats and 8½ carats respectively. The very fact that they were diamonds at all was disputed by many, although their shape and physical properties should have left no doubt upon the matter. The first was a slightly unsymmetrical octohedron, measuring ⅓ in. in one direction and about ⅓ in. in the other, whilst the second was likewise an octohedron, but much more symmetrical. Both were of colour, and the first, which was found near Hope Town on the Orange River, or Nu Gariep, had a decidedly yellow tinge; the specific gravity was 3.54. It was announced, at the same time, that six other diamonds had also been found in South Africa; but as these were not to be seen in London even the Professor mentioned them in a way which certainly did not indicate his complete confidence in their existence; yet only a dozen years afterwards the diamonds produced and sent into the market from the South African fields were estimated at nearly 4,000,000£ worth per annum.

As to the probable origin of diamonds really little is known, but perhaps the most reasonable view is that of Mr. E. de Chancourtois, who believes that the diamond has been formed from hydro-carbonated emanations, as sulphur is formed from hydro-sulphuretted emanations, and that its origin is thus connected with the previous existence of petroleum bearing or bituminous schists. In the oxidation of sulphuretted hydrogen in sulfataras all the hydrogen is oxidised, but only a part of the sulphur passes to the state of sulphurous acid in this humid form of combustion. So in an analogous manner the diamond was, he thinks, probable formed—that is, in the course of a humid combustion of a carburetted hydrogen, in which all the hydrogen was oxidised, but only a part of the carbon was transformed into carbonic acid. This view accords with the occurrence of the diamond in arenaceous rocks or itacolumites, which are mostly metamorphic rocks of paleozoic age, and which may once have been bituminous, either by original formation or by emanations from lower rocks. Mr. de Chancourtois supposes that the crystal would have formed only where there were fissures for the passage of the vapours of the carburetted hydrogen, and where the process could go on with extreme slowness. Nor are the mines themselves more readily treated of—that is to say, two mines comparatively similar as regards the diamantiferous soil will yield diamonds of distinctly different character and value. Without going so far as to believe in the sausage-shaped crystals described by the Kimberley Correspondent of the *Mining Journal*, it may be admitted that the South African diamonds differ widely in form, and are often found of a shape which by no means supports scientific ideas on the subject, and the difference of colour is even greater than the difference of shape.

Owing to certain commercial considerations, the Kimberley Mine has been more extensively developed than any other in the district, but although for quantity and size of diamonds it has done more to swell the total than its rivals, the colour and quality of the stones have been so inferior that the reputation of South African diamonds generally has suffered in consequence. A certain percentage of fairly white stones are found, but the yellow and the brown so largely preponderate that the average price realised in the market is too low to permit of the earning of dividends for British capitalists who have invested in Kimberley concerns. It is, moreover, too often supposed by capitalists that the Kimberley Mine embraces the whole South African diamond field, than which no opinion can be more erroneous, though it is equally erroneous to suppose that white diamonds are produced in the region. From the time of the first announcement of the Cape diamond discoveries the whiteness and beauty of the Jagersfontein stones have been proverbial, and now that the Jagersfontein Mine is becoming more developed it is not improbable that the reputation of South Africa will improve both for the character of its diamonds, and for its remunerativeness to British capitalists who may furnish the funds to work it. Although the London and Jagersfontein, the Central Jagersfontein, and some others which are, perhaps, too well known on the London market, have hitherto been disappointing, there are Jagersfontein companies which are producing results that will satisfy all concerned, and some of the recent consignments now in the hands of Messrs. Pam and Co., of Holborn-circus, certainly compare well with fine Brazilian stones. And that in the Jagersfontein Mine white stones are the rule and not the exception is evident from the fact that four weeks' working of the Kohinoor Company's claims (the company's profit for the September quarter will be about 5000£.) gave 1793 carats of diamonds, including one 3½ carat and one 104 carat, and that of these 1793 carats only 20 carats were yellow.

The vast majority of the stones are not only of the good colour mentioned, but are in splendidly symmetrical crystals, and, as far as can be judged in the rough, likely to cut well. The 104 carat stone is badly broken, and must have formed part of a crystal which, when perfect, must have exceeded the Porter-Rhodes (which, by the way, is believed by many, in consequence of its whiteness, to have come from Jagersfontein) in weight; it is, moreover, imperfect in some other respects, although still a valuable stone. The 34-carat stone is a far finer specimen, and although the soft corners are worn off will make when cut a magnificent brilliant. From the Palmerston Company's claims in the same mine stones of fully equal colour and quality are also obtained, the month's produce being 236½ carats, including three stones weighing 46 carats of a very fine blue-white. As these consignments were received simultaneously, and as the Kohinoor claims are in the north-west, whilst the Palmerston is in the extreme south, the mine would appear to be very regular throughout, and Jagersfontein may, therefore, be expected, when fully developed, to become the most important and remunerative diamond mine in South Africa.

DENVER GOLD COMPANY.—The allotment letters were posted on October 23.

## Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. CCIV.\*

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**ROPES.**—For pit ropes the materials used are hemp (in Belgium often hemp manufactured from aloë fibre), iron, and steel wire. The ropes are made in two forms—round ropes and flat ropes.

**WIRE ROPES.**—The invention or introduction of iron wire ropes for mining purposes is claimed for Bergrath Albert about the year 1830, and their introduction and spread in Germany is undoubtedly due to him, though M. Combes, in his handbook on mining, states that he used iron wire ropes as early as the year 1822 in pits in the Rive de Gier district. Their introduction in Germany as well as elsewhere was due to the necessity of having a better material than hemp for winding from the great depths to which the Harz Mines had been sunk. Wire ropes are formed by twisting together from 3 to 6 strands, and each strand by twisting together from 4 to 12 wires. Where still stronger ropes are needed the total number of wires may be over 200. The construction of ropes with such a great number of wires is, however, somewhat different; the single wires are of much smaller diameter than is otherwise usual. A wire rope containing 108 wires is made, for example, of 6 strands, each containing 18 wires. The strands are made by twisting first 6 wires together, and using them as a core, around which the remaining 12 wires are twisted. It is only possible to twist 3 or 4 strands together, which, with unequal pressure on the sides or along one strand, retain a symmetrical position. With a greater number of strands there is always a hollow space left in the centre of the rope, which increases with the number of the strands. Thus the diameter of the circle inscribed in this hollow core is  $\frac{1}{4}$  times the diameter of the single strand when the rope is made up of 4 strands; when 6 strands are employed the diameter of the hollow core equals the diameter of a strand; when the rope is composed of 8 strands the diameter of the hollow core is  $\frac{1}{6}$  times that of a single strand. To preserve the regularity of the strands it is usual to fill or form the core of a hempoen strand sometimes (especially were 6 strands are employed) by a wire strand; this arrangement is inadvisable since the actual length of the core is less than that of the separate strands, and consequently the former would be ruptured by an extension of the rope long before any severe strain came on the outer strands. The presence of a wire core in the strands, or of a wire strand core in the rope, cannot, therefore, be looked upon as giving any additional strength, whilst it has the disadvantage of increasing the weight of the rope.

The twisting of the strands to form the rope is in the opposite direction to the twist of the wires to form the strands, the object being that the tendency of the one to untwist when the rope is loaded shall counteract the tendency of the other to untwist. Owing to the twisting of the wires and the strands the direction of the axis of the former is inclined to the direction of the axis of the latter, and the direction of the axis of the latter is inclined to the axis of the rope; this inclination varies between  $8^\circ$  and  $20^\circ$ . In consequence of this twist, therefore, the length of the wires is greater than the length of the strands, and the length of the strands is greater than the length of the rope. The main reasons for twisting the wires and strands is to increase the safe working strength of the rope. If we suppose the case of a rope in which all the wires are perfectly parallel, it will be seen that when the rope passes round a pulley the wires on the outside will be extended, and a greater strain will be thrown on them than on the wires on the underside. When, however, the wires are twisted each comes equally on the outer surface as well as on the under surface, and hence all the wires will be equally strained. The twisting of the wires, however, makes the rope stiffer, and this means loss of power when the rope is bent round a pulley, owing to the work consumed in bending and then straightening the rope. When the inclination of the strands is slight the section of the rope is more than that of a polygon, but when the inclination is great the section approaches more nearly that of a circle, which form is the most suitable passing round pulleys. The greater the inclination (i.e., the greater the twist given to the strands) so much the larger is the strain thrown upon the wires. For example, an experiment made by Muschenbrock showed that a rope which had been so much twisted that the actual length of the rope was only four-fifths that of the strands which composed it, broke with a weight of 6205 lbs.; when the twist was increased so that the above proportion became three-fourths, the rope broke with a weight of 1850 lbs.; whilst when the above proportion reached two-thirds the rope broke with a weight of 4100 lbs. The cause of this is that owing to some portions of the strands being nearer the centre than others the tension of the wire varies, being greatest in those portions on the circumference. For these reasons it appears advisable not to increase the angle of inclination with the axis caused by twisting much above  $15^\circ$ . Also the strength of the rope does not increase directly as the sectional area, since the thicker the rope the greater will be the difference between the strain on those portions of the wires on the outside of the rope and those portions of the wires which lie nearest the centre; and this difference will be of more account when the rope passes round a pulley.

The winding rope should always be of such a length that when the cage is at the bottom of the shaft four or five coils still remain on the drum, so that the full shock when steam is put on does not come on the fastening of the rope to the drum, but is partly withstood by the friction between the rope and the drum. Moreover, that end of the rope close to its attachment to the cage suffers most, and it is at this point that the rope breaks oftenest. It is probable that since the elasticity of the rope does not act as a spring at this point (as it does in an increasing degree the further from the lower end of the rope) that at this point a crystalline structure is gradually produced. If sufficient surplus of length has been provided the damaged part at the lower end can be cut off, and the rope attached afresh to the shackle.

The diameter of the rope depends upon the weight to be raised, but we have just shown above why it is not correct to assume that the strength of the rope varies directly as the sectional area. The thicker the rope so much the thicker are usually the wires of which the strands are made, though it does not appear advisable to increase the diameter of the wires to above  $\frac{1}{6}$ th or  $\frac{1}{5}$ th of an inch. A rope of equal sectional area of material, but composed of a greater number of wires is more flexible than one composed of a less number of wires and also stronger, probably from the fact that in the process of manufacture the outside portion of each wire is denser than the inner body of the wire, and consequently stronger, and where a greater number of wires are used there is a greater proportion of the material of a density above the normal. Thin wires have the disadvantage that they suffer more rapidly from oxidation.

Notwithstanding the use of safety catches the winding ropes are subjected to a daily inspection, and if several of the wires are ruptured near the same place the rope must be replaced by a new one. Wire ropes ruptured in one place are often perfectly sound over the other portions, and in some places if there is still sufficient length after the damaged portion has been cut out the two pieces are spliced together. The following is the mode of splicing adopted at the Saarbrücken Mines. The two ends to be joined together are untwisted for a length of 30 yards into the separate strands, and half the strands on each end cut off at that length. The two ends of the ropes are then laid across each other in such a manner that the untwisted ends of the two ropes (i.e., 30 yards from the end of each rope) are 20 yards apart. The strands of both ropes are now twisted together for a length of 20 yards, over which the splice is of the normal thickness of the rope. The remaining 10 yards of each end is again reduced by half the number of its strands, and these are wound round the untwisted part of each rope, which they overlap, and threaded through the untwisted part of the rope; the ends still projecting are bent round and hammered close to the rope. Over

these portions the spliced rope has a swelling equal to an increase of 25 per cent. in thickness. This amount of swelling has not been found inconvenient in practice, and ropes so spliced have done good service for a considerable time.

The Government Mine Inspection for the Dortmund district have issued the following rules for calculating the strength of winding ropes:—1. For iron wire ropes; 6 is assumed as the factor of safety. The weight to be raised (in kilogrammes) is equal to 7.31 times the square of the diameter of a wire (in millimetres) multiplied by the number of wires. Where pounds and inches are used in place of the kilogrammes and millimetres the factor, 7.31, must be replaced by 10,500. Where the diameter of the wires cannot be accurately measured the following rule can be used to obtain it:—The diameter of the wire multiplied by the square root of the number of wires in the rope is equal to 6.6 times the diameter of the rope. 2. For ropes manufactured from aloë fibres. The weight to be raised (in kilogrammes) is equal to 110 times the sectional area of the rope (in square centimetres). For pound and inch units the factor, 110, becomes 1376. In place of measurement for the area which it is difficult accurately to attain, the following rule may be used as a check. The weight to be raised (in kilogrammes) is equal to 942 times the weight of the rope per running metre, or 3100 times the weight of the rope per running foot. 3. For hempoen ropes the weight to be raised (in kilogrammes) is equal to 95 the sectional area of the rope (in square centimetres). For the pound and inch units the factor 95 becomes 1361. In place of measurement for the area, or rather as a check on the result, the following rule may be used:—The weight to be raised in kilogrammes is equal to 985 times the weight per running metre of the rope, or 3250 times the weight per running foot. When the rope is tarred the result given by the first rule must be multiplied by .8, and the result given by the second rule by .84. 4. For cast steel wire ropes the factors 7.31 and 10,500

given above for iron wire ropes should be replaced by 15 and 22,000 respectively. When men are being raised it is an observed rule that the weight in the cage should never exceed half the weight of mineral which is raised at one time.

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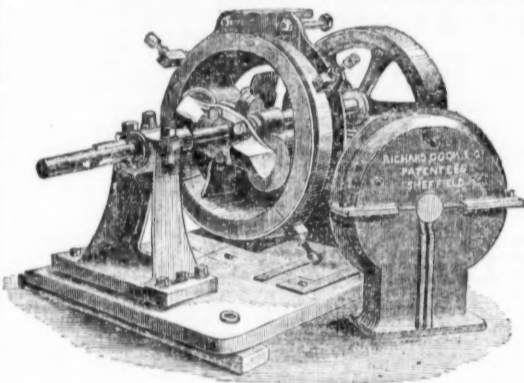
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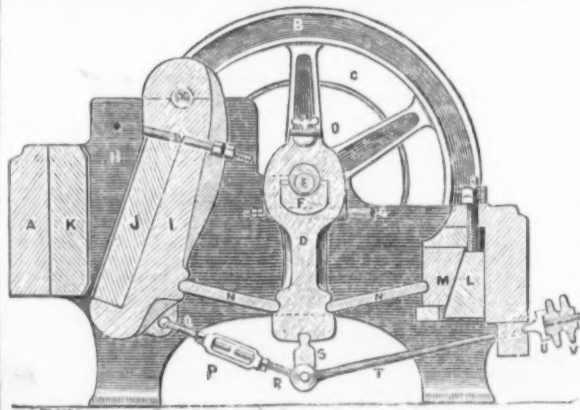
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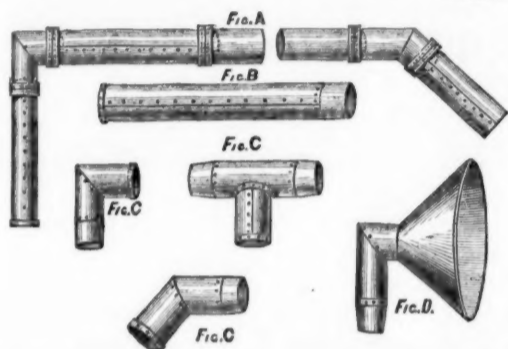


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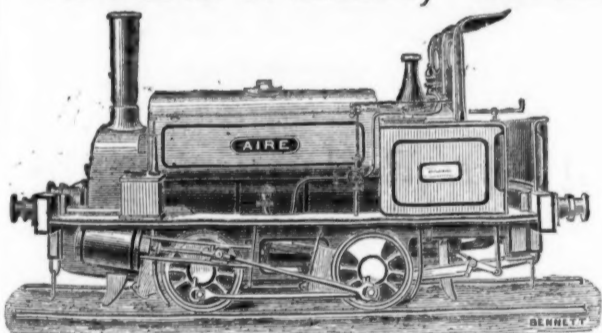
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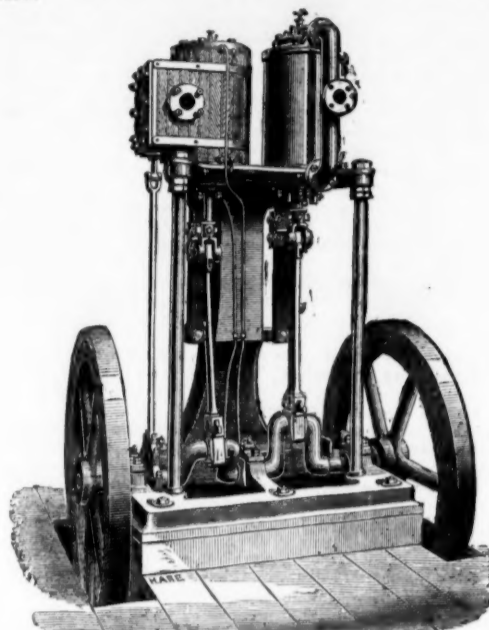
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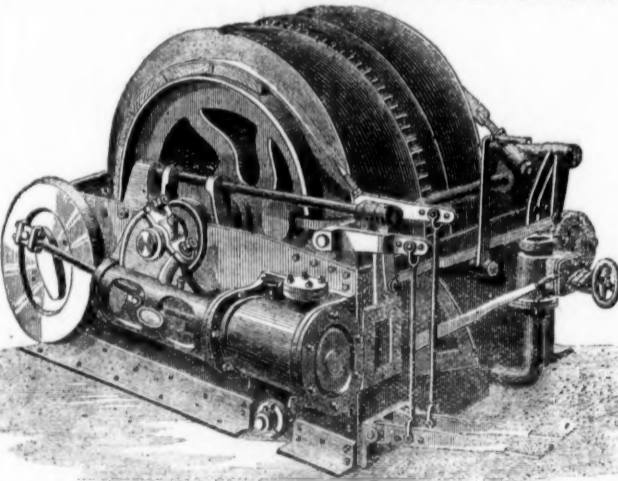
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A,— 6 in. double cylinder, with 2 ft. 3 in. drums.

B,— 8 in. " " 3 ft. 0 in. drums.

C,— 10 in. " " 3 ft. 6 in. drums.

D,— 12 in. " " 4 ft. 6 in. drums.

E,— 14 in. " " 5 ft. 0 in. drums.

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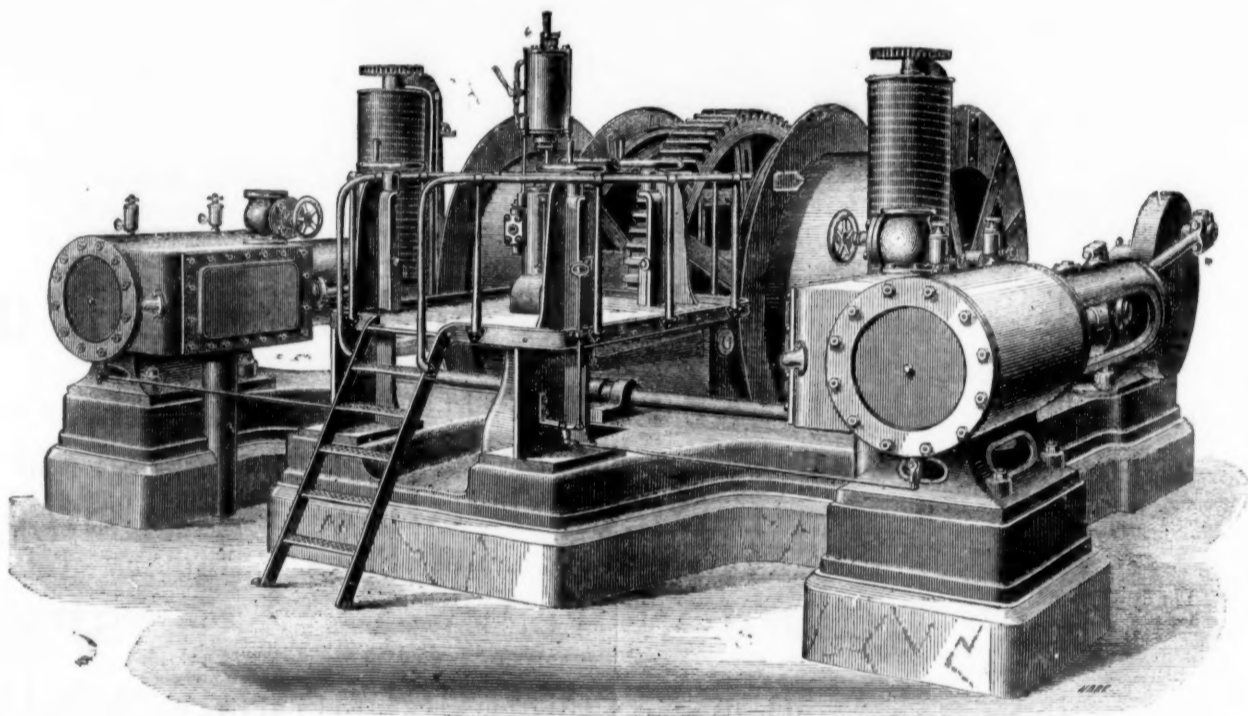
NEWCASTLE:  
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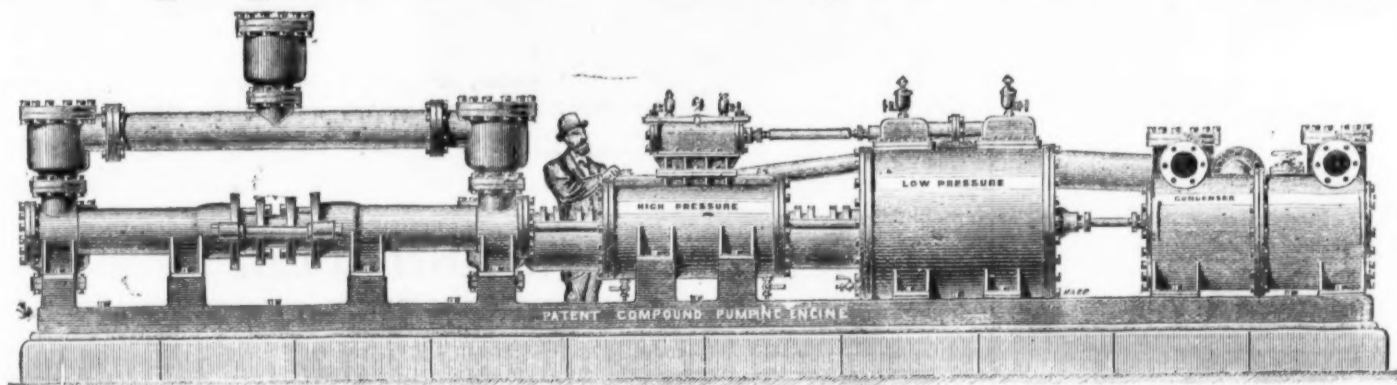
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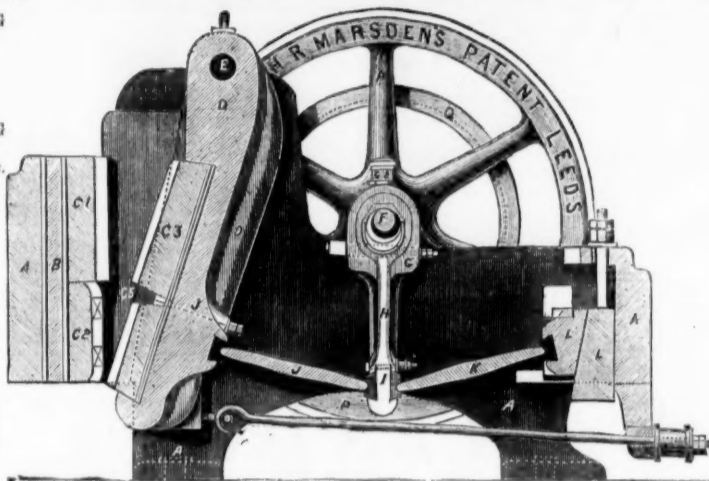
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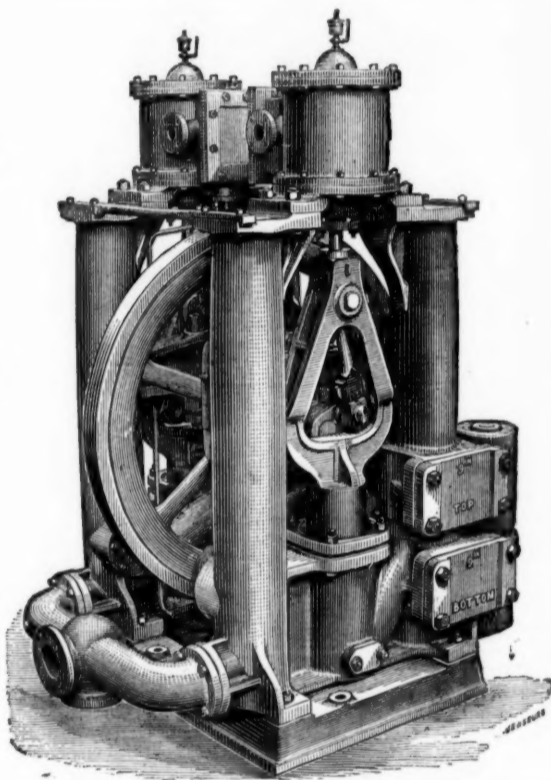
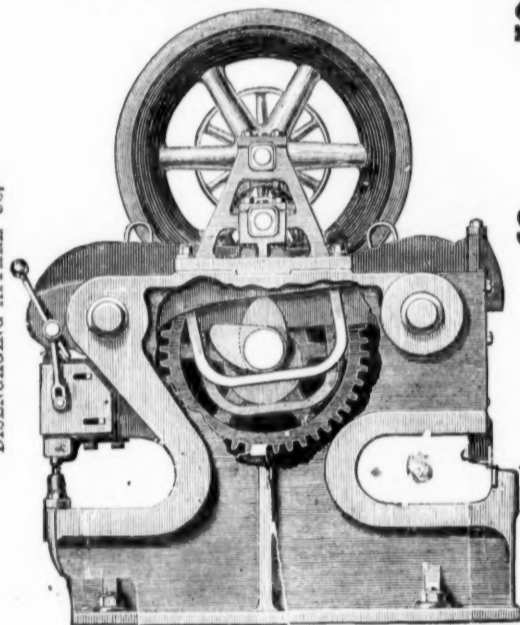
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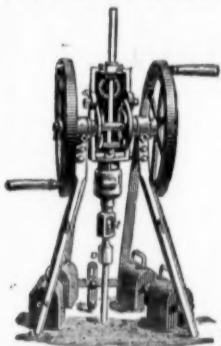
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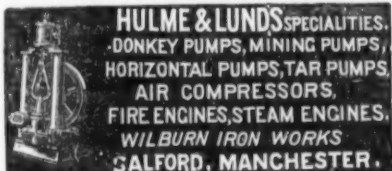
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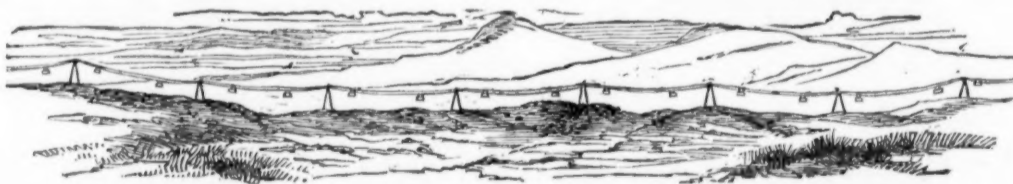
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